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The Bronze Age cemetery of Kurma XI: A contribution to understanding the mortuary variability and social organization of hunters and gatherers of Siberia, Russia

by

Michael Anthony Metcalf ©

A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of Master of Arts.

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Abstract

This thesis investigates the social variability of the Bronze Age Glazkovo culture based on new archaeological data collected through the excavation of the Kurma XI cemetery located on the western shore of Lake Baikal. This research explores how social distinctions within the Glazkovo culture group were represented in mortuary practices by evaluating variability in burial ritual. To this end, I integrate archaeological, spatial, and demographic data with existing information from previously excavated sites to contextualize Kurma XI with other mortuary sites of the same age in the Little Sea region. Recent literature has described Glazkovo society as egalitarian (Weber 1995; Weber et al. 2002), but more comprehensive descriptions of social organization are almost entirely absent from the literature. This thesis provides some initial hypotheses with which to re-examine earlier views on the nature of Glazkovo society, and how social relationships may have been embodied within these mortuary protocols.

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Chapter 1

Geographic Context and Review of Archaeological Work

In this chapter I provide the geographic and archaeological background of the Lake Baikal region. Archaeologists in this region have arguably placed a strong emphasis on the definition of cultural complexes and their chronological relationships, and as a result much of the supplied background pertains to different culture history models. Social organization is rarely addressed in these culture histories, and only Okladnikov's (1950, 1955, 1978) extensive model has provided some hypotheses in this regard. As Okladnikov's synthesis was the foundation for all subsequent examinations of cultural processes in the Cis-Baikal Middle Holocene, his model is presented in detail. Prior to this discussion, however, I briefly summarize the region's geographic and biological context, including the topography, hydrology, flora, and fauna of the Cis-Baikal. Since the climate of the region has been generally stable over the past 10,000 years (Weber et al. 2002), the modern environment is likely very similar to the one inhabited by Neolithic and Early Bronze Age hunter-gatherer groups.

1.1 Geographic Context

In describing the Lake Baikal region's physical environment, I rely on Weber (2003), whose work is based primarily on that of Kozhov (1950, 1963, 1972). Additional sources are listed as appropriate. The Cis-Baikal area of study (Figure 1) is similarly defined both by Michael (1958:5–7) and Weber et al. (2002:232–240). The region is located to the north and west of Lake Baikal, and encompasses the Angara River basin from the river mouth to Ust'-Ilimsk, the Lena River from its source to Kirensk, the west coast of Lake Baikal, and Ol'khon Island. The regions to the south and east of lake, which are outside the study area, are referred to as the Trans-Baikal. The Cis-Baikal region is transected by a number of mountain ranges that generally run parallel to the lakeshore. To the west of Baikal, the Primorskii range extends from the Angara's source on the southwestern coast of the lake to Ol'khon Island. These mountains exhibit a foothill-style character, with few peaks above the approximately

1300–1400 m tree line. The Baikalskii Range, which begins approximately 50 km north of Ol'khon Island and extends to the lake's northern tip, contains taller peaks than the Primorskii, a number of which rise above the tree line; the highest of these reach 2650 m. The Eastern Sayan mountain range is oriented perpendicular to the above ranges, and is located west of the southwest tip of Lake Baikal. These mountains are among the tallest (3000–3200 m) in the region.

The Cis-Baikal region contains abundant fresh-water resources, the largest of which is Lake Baikal itself. The lake is the receptacle of over 400 tributaries and is the world's largest body of freshwater by volume, measuring approximately 636 km in length and 1.6 km in depth. The region also contains two major river basins, the Angara and Lena. The Angara River, Lake Baikal's only outlet, flows to the northwest before turning north. The river source, located nearly 80 km northeast of the lake's southwest tip, is over 1 km wide. The Angara conjoins with 4 major tributaries along its upper stretch: the Irkut, Kitoi, Belaia, and Oka rivers. The second major river system, the Lena River, has its source in the Baikalskii Mountains, and flows towards the northeast, eventually reaching the Arctic Ocean. Only the upper section of the Lena River is encompassed within the study area.

Climate

The Cis-Baikal region experiences a continental climate, with 5-month winters, short summers, and relatively long transitional seasons. The average temperatures for January and July are –19 and 20°C respectively, although markedly higher and lower temperatures are common. Lake Baikal, due to its large size and depth, stores a vast amount of thermal energy that influences the climate of adjacent areas. These locales are commonly a few degrees cooler in summer and warmer in winter than surrounding regions, and generally free of permafrost. Outlying or mountainous regions experience wider temperature ranges, and are subject to permafrost that varies from several to a few tens of meters. Due to differences in elevation within the region, the spatial distribution of precipitation is highly variable; the Eastern Sayan mountains may receive as much as 1200 mm annually, while as little as 160–190 mm may fall in the Ol'khon region. On average, this amounts to approximately 400 mm of precipitation annually, most of which occurs during the growing season. Snow cover varies between 30 and 80 cm, and remains on the ground for approximately 180 days of the year (Weber 2003:54).

Flora and Fauna

The spatial distribution of vegetation communities within the Cis-Baikal is dependant on a number of factors, such as topography, soil composition, altitude, relief, and exposure to solar radiation (Weber et al. 2002:234). The region is characterized by a variety of boreal forest/taiga vegetation; large, dense forests are composed of both conifers and deciduous trees, with a variety of bushes, ferns, and mosses composing the undergrowth. The area is also home to a large number of mammalian, avian, and fish species (Weber 2003:55–59). Avian fauna is the most numerous, including approximately 300 species, some of which are endemic. Mammals are represented by around 100 terrestrial and aquatic species. Terrestrial mammals consist of red deer (*Cervus elaphus* Linné), roe deer (*Capreolus capreolus pygargus* Pallas), moose (*Alces alces* Linné), reindeer (*Rangifer tarandus* Linné), musk deer (*Moschus moschiferus* Linné), Siberian ibex (*Capra sibirica* Pallas), boar (*Sus scrofa* Linné), wolf (*Canis lupus* Linné), fox (*Vulpes vulpes* Linné), lynx (*Lynx lynx* Linné) wolverine (*Gulo gulo* Linné, brown bear (*Ursus arctos* Linné), hare (*Lepus timidus* Linné) and a number of rodent and mustelid species. The Lake Baikal seal (*Phoca sibirica* Gmelin), the Eurasian beaver (*Castor fiber* Linné), and the European otter (*Lutra lutra* Linné) are the region's only aquatic mammals.

Generally, most of these species occupy varying habitats on a seasonal basis. The larger ungulates, such as red deer, roe deer, and reindeer are primarily found in the lowlands during the winter, but migrate to higher elevations in the summer months. Moose generally remain in low elevations year round, while Siberian ibex rarely descend from the upper elevations of the Baikalskii and Sayan mountain ranges. The smaller musk deer is unevenly distributed and less migratory, preferring rocky slopes near riverine environments year-round. Boars prefer marshy areas at low elevations, and likely do not engage in any vertical migration. Rodent species hibernate through the winter months, while lagomorphs and mustelids remain active year-round. Seals generally inhabit bentho-pelagic environments, but may be found sunbasking in proximity to the coastline at certain times of the year (Weber et al. 1993, 1998).

Lake Baikal and its surrounding waterways are home to 56 species of fish. Due to differential hydrobiology, the spatial distribution and relative numbers of fish species are highly variable across the region (Weber 2003:64). The first section of Angara River, from the lake to the confluence at the Irkut River, is influenced by the hydrobiology of Lake Baikal and likely contained large quantities of fish. The second section, from the confluence of the Irkut River to the confluence of the Oka River, contained smaller populations of fish, while the third section, found below the Oka, was also home to abundant fish populations (Weber 2003:64). Lake Baikal is highly variable in terms of the distribution of fish species on both spatial and seasonal bases, but littoral and lagunal species inhabiting shallow bays were likely important food sources during the Middle Holocene, especially during spawning periods (Weber 2003:64).

1.1 Geography of the Little Sea Region

The Little Sea is a large bay located along the west coast of Lake Baikal, bracketed by the lake's western shore and the eastern coast of Ol'khon Island (Figure 2). Elokhin Cape, found on the lake's western shore, marks the north border of the Little Sea or Ol'khon region, while the Bugul'deika River marks the southern boundary (Goriunova 2003:15). The Little Sea, approximately 70 km long by 1.8 km wide, is much shallower than the lake's main body, rarely exceeding a depth of approximately 70 m. The southwestern-most tip of the Little Sea extends slightly south of the southern end of Ol'khon Island. This end of the island is adjacent to a strait that connects the Little Sea to the main body of the lake. Both the western and eastern shores of the Little Sea are lined with a large number of small capes and bays, containing numerous Neolithic and Bronze Age sites (Goriunova 2003:15). The environment is generally characterized as a steppe meadow, which is unique from most other regions in the Cis-Baikal.

1.2 History of Archaeological Research

1.2.1 Early Research

The Cis-Baikal region has hosted numerous archaeological excavations over the past 300 years, the earliest of which were completed under the auspices of Peter I as early as 1730 (Michael 1958:7–8). These excavations were small in scale, however, and of course preceded the development of archaeology as a professional discipline. Excavations that adhered to more stringent archaeological methods began much later, in the late 19th and early 20th centuries. A number of important excavations were conducted during this period, most notably those by N.I. Vitkovskii and B.E. Petri. Vitkovskii excavated a number of burials from the Kitoi cemetery, which became the type-site for burials of the Kitoi culture, while Petri excavated the stratified habitation site of Ulan-Khada in the Ol'khon region. The results of these excavations provided the necessary data for the region's first culture history models by Petri, M.P. Ovchinnikov, V.A. Gorodtsov, G.F. Debets, and G.M. Konstantinov. These models, however, "were mutually contradictory, and…based on incomplete and scattered materials" (Michael 1958:9).

Arguably the most prominent researcher in the region during the 20th century was A.P. Okladnikov. A student of Petri, Okladnikov conducted extensive excavations in the Angara river valley from the late 1920s through the 1970s. Based on the material he recovered during the early stages of his career, he produced the first comprehensive synthesis of archaeological material from the Cis-Baikal region for the middle Holocene. Okladnikov described a series of distinct culture complexes that existed sequentially, and characterized aspects of their subsistence and social structure. Further, he attempted to explain the trajectory of change that accounted for the suggested differences in subsistence strategies and diet among groups.

At the time of publication, Okladnikov's model was the most comprehensive yet produced. It has been suggested that pressure to uphold the political and ideological doctrines of the time may have been responsible for the evolutionary trajectory of Okladnikov's model (Weber 1994), as the evolution of cultures he described for the region closely followed the writings of Engles, Lenin, and Marx, whose works were strongly endorsed by the Soviet state. Regardless of possible political bias and some initial criticisms, Okladnikov's views remained dominant in Cis-Baikal archaeology for nearly five decades. The cultures identified by Okladnikov served as a basic framework for nearly all subsequent researchers, despite the later invalidation of the chronological progression. As such, it is essential to explore Okladnikov's model in some detail here.

The Okladnikov Model

The Okladnikov synthesis was originally based on mortuary evidence collected from 270 Neolithic and Early Bronze Age burials excavated from the banks of the Angara River (Weber 1995:103), the majority of which were located on the right bank of the river, closer to Lake Baikal (Michael 1958:10). Additional graves excavated after his initial proposal were subsequently incorporated into the model. The data collected from these excavations, which were synthesized with that of earlier researchers, led Okladnikov to suggest a unilinear progression of 6 culture stages. The groups were named Khin', Isakovo, Serovo, Kitoi, Glazkovo, and Shivera (Bazaliiskii 2003:37). Each culture was defined by specific artifact types and mortuary customs, from which Okladnikov interpreted subsistence strategies and social organization. The Khin' culture was confined to the late Mesolithic, while the Isakovo, Serovo, Kitoi, Glazkovo were attributed to the middle Holocene Neolithic. The Shivera group was relegated to the middle Bronze Age. These Khin' and Shivera cultures are not discussed below, as the primary focus here is the Neolithic and early Bronze Age.

The Isakovo culture appeared in the Early Neolithic, and was originally characterized on the basis of 12 graves from the Cis-Baikal region (Weber 1995:104). Isakovo graves were shallow excavated pits filled with stone slabs or small boulders. The orientations of the grave pits, although somewhat variable, were generally perpendicular to the course of nearby rivers. Okladnikov suggested that variation in burial orientation was the result of seasonal changes of sunrise and sunset azimuths, which, in turn, suggested the importance of the sun to Isakovo mortuary ritual. Individuals were laid in the bottom of the grave pit in extended supine positions, with grave accoutrements distributed around the body. Hunting equipment, such as bone points, and lithic points and knives dominated grave assemblages, but other items, such as ornamental split boar tusk pendants, antler beads, and single clay pots were also commonly recovered. These Isakovo pots, termed Net-Impressed I style, were characterized by their miter-shape, round bottom, and net impressed decoration (Weber 1995:104). Fishing gear, such as fishhooks and harpoons, was entirely absent from Isakovo burials. Generally speaking, Isakovo graves exhibited a marked lack of variability with regard to aspects of mortuary ritual.

As the first group to inhabit the Cis-Baikal during the Neolithic, the Isakovo group was represented by small number of graves, none of which contained multiple burials. These factors led Okladnikov to argue that the Isakovo were composed of small social units, and likely were not populous. Additionally, the absence of fishing gear was viewed as evidence of a subsistence strategy exclusively dependent on terrestrial resources. Uniformity of grave accoutrements among sex and age distinctions suggested that the Isakovo were egalitarian, and likely organized according to matrilineal ties.

The Serovo culture was originally identified from 37 graves widely distributed across the Cis-Baikal (Weber 1995:106). Like the Isakovo interments, grave pits were excavated into the earth and lined with slabs or cobblestones. Pits were also oriented perpendicular to nearby rivers, with variations in orientation also attributed to seasonal change in sunrise and sunset locations. Serovo individuals were also inhumed in extended, supine positions, and grave assemblages were even more uniform among burials than those of Isakovo. Accoutrements included bows, arrowheads, knives, ground nephrite axes, and a spearheads. Pots recovered from these graves were classified as Net-Impressed II, and were oval, round bottomed, and featured net impressions; some also exhibited suspension lugs. In contrast to the Isakovo, Serovo assemblages often contained fishing gear, but hunting tools such as lithic points represented the larger portion of these assemblages. Grave inclusions were uniform with regard to sex and age, with no overtly rich or poor Serovo graves (Weber 1995:106). This strict conformity to mortuary ritual was considered a diagnostic trait of Serovo interments, and pattern that was observed on both intra- and inter-site bases (Weber 1995:106).

In Okladnikov's model, the Serovo directly followed the Isakovo, supposedly inhabiting the Cis-Baikal during the Middle Neolithic. The remains of bow plates from composite bows suggested that the Serovo were expert hunters, subsisting largely on terrestrial herbivores. The additional presence of fishing equipment, however, indicated that they also exploited aquatic resources. Consistent uniformity in grave assemblages led Okladnikov to hypothesize that the Serovo also possessed an egalitarian social structure, similar to the preceding Isakovo. The number of known Serovo graves was markedly greater that the number of Isakovo graves. He interpreted these numbers as evidence of population growth since Isakovo times, attributed to the more productive Serovo subsistence strategy that included both hunting and fishing. Okladnikov also noted that Serovo cemeteries contained paired burials, particularly older females with children. This feature, in combination with other aspects of mortuary ritual, indicated that, "the entire [Serovo] pattern of evidence best conformed with Engels' description of a primitive matriarchal organization in which all members of a society were equals, women occupied independent and distinguished positions on par with men, there was no sexual division of labor, and slavery did not exist" (Okladnikov, cited in Weber 1994:4).

The Kitoi culture was identified on the foundation of 42 graves from the Angara valley, approximately 30 of which were excavated from the Kitoi cemetery (Weber 1995:106). Kitoi grave pits were generally deeper than those of the Isakovo or Serovo, and lacked any kind of stone structures within or above the grave pit. One of the most observable and distinct characteristics of Kitoi interments was the common use of large amounts of red ochre to cover the burial. The majority of pits were oriented towards the NE or the SW. Individuals were commonly interred in supine positions, but often lacked heads. Multiple burials were more common to the Kitoi culture, with the arrangement of two individuals head-to-toe cited as a unique Kitoi practice. Similar to the Serovo, Kitoi graves contained a mixture of hunting and fishing equipment, but fishing equipment often composed the larger proportions of grave assemblages. Pottery was almost entirely absent. Unlike the Isakovo and Serovo, the quantity of grave goods was highly variable among graves, with extremely rich and poor burials were common to both sexes. Male individuals, however, were more commonly associated with greater quantities of artifacts than were females.

The Kitoi immediately followed the Serovo in Okladnikov's chronology, appearing in the Late Neolithic. As compared with the Isakovo and Serovo, the Kitoi represented a radical change in subsistence behaviors and social organization. The prevalence of fishing equipment in Kitoi grave assemblages was interpreted as evidence of a switch to the more labor-intensive subsistence strategy of fishing, which in turn was suggested as the cause for a subsequent decline of the social position of women. He explained that men, who were no longer directly in control of subsistence (through hunting), began to subjugate females by assuming greater social power in replacement of their former power over subsistence. This decline in the social position of women was evident in the smaller grave assemblages associated with Kitoi females. The marked variance in the size of grave assemblages among men, however, seemed to suggest that there were also hierarchical distinctions among males. Additionally, double interments containing a male and female were interpreted as representing males and their concubines, another marker of increased social status of males. Okladnikov also observed some double burials containing an adult male with a child, a pattern interpreted as an expression of patriarchal family relationships. The sum of these data led Okladnikov to believe that the Kitoi culture represented the shift from matriarchal to patriarchal social organization in the Cis-Baikal Neolithic (Weber 1994:4). He explained that the continuous population growth that began in the Isakovo period instigated a change in subsistence strategies, in combination with influences from interregional contact with other groups to the west, precipitated the reformation of social organization during the Kitoi period (Weber 1994:5).

Forty-seven graves from the Angara valley, which were later supplemented by additional graves from the Upper Lena and Trans-Baikal region, provided the basis for the characterization of the Glazkovo culture, which appeared following the Kitoi in the Early Bronze Age (Weber 1995:109). Glazkovo graves were generally shallow pits lined with stones, but also overlaid with stone slabs or boulders. Individuals were interred in extended supine positions, sometimes exhibiting moderate flexion of the lower limbs. A few burials contained individuals in tightly flexed or sitting positions.

Graves in the Angara Valley were generally oriented parallel to nearby rivers, while those adjacent to Lake Baikal were arranged generally west–east. Often, Glazkovo graves were arranged into rows. Partial or complete cremation was observed in some interments, while the use of ochre was rare. Grave assemblages featured a mix of hunting and fishing equipment, as well as the first metal artifacts to appear in the Cis-Baikal. These objects were most commonly composed of copper, and were represented by fishhook barbs, knives, needles, and rings. Pottery was a rare component of Glazkovo grave assemblages. The character of these grave assemblages varied according to sex, with male interments generally producing fishing and hunting tools, while females were interred with domestic implements such as scrapers, needles, adzes, and ornaments (Weber 1995:111).

As Glazkovo graves were more numerous than those of any other Cis-Baikal culture, Okladnikov suggested that they were likely more populous in the region than any earlier culture. Similar to the Kitoi, grave assemblages were characterized by the presence of both fishing and hunting equipment. He viewed these assemblages as evidence of a Glazkovo subsistence strategy that included both terrestrial and aquatic resources, but smaller arrow points seemed to reflect a focus on smaller game. Glazkovo graves generally showed less variance between the sexes with regard to the quantity of grave accoutrements, the apparent differentiation in grave assemblages according to sex led Okladnikov to suggest that the male and female social roles were rigidly defined in Glazkovo culture, and that the final consolidation of the patriarchal power, which began in the preceding Kitoi period, occurred the Early Bronze Age Glazkovo culture (Weber 1994:7).

Relative Chronology

The chronological order of culture complexes in the Neolithic and Early Bronze Age was based on Okladnikov's comparisons of artifact typological characteristics and technological developments in the Cis-Baikal with those of neighboring regions from similar chronological periods (Weber 1995:111). The presence of metal artifacts in Glazkovo graves determined their placement at the end of the sequence, in the Early Bronze Age. The Isakovo, in Okladnikov's view, produced tools and pottery that were of inferior quality to those of other groups, and exhibited direct connections with the Paleolithic (Michael 1958:34). This warranted their position at the beginning of the cultural sequence, in the Early Neolithic. Okladnikov saw a number of apparent similarities between the Kitoi and Glazkovo in their mortuary protocols. Graves from both cultures contained a mixture of fishing and hunting equipment, and both groups commonly produced multiple interments. Additionally, Okladnikov saw typological similarities among ornamental grave goods, such as nephrite axes and adzes. These similarities led him to believe that the Kitoi and Glazkovo were closely related, and due to the presence of metal in Glazkovo graves, that the Kitoi had directly preceded the Glazkovo (Michael 1958:18). Finally, Okladnikov placed the Serovo group between the Isakovo and Kitoi, as Serovo hunting equipment appeared similar in form with that of the Isakovo, but projectile point styles were more consistent with Kitoi arrow point morphology. Thus, the progression of Cis-Baikal cultures began with the Isakovo, followed by the Serovo, Kitoi, and finally the Glazkovo. This sequence was argued to be unilineal, with each culture evolving into the one following.

In sum, Okladnikov's model integrated archaeological evidence with processual elements to create a culture history model that attempted to explain the variation exhibited by the available mortuary evidence. The model argued for a unilineal progression of cultures that followed a trajectory of increasing population, a shift from hunting to fishing as a primary mode of subsistence, an increase in social hierarchy, the general decline of the social position of women, and a shift from matrilineal to patrilineal familial relations. More specifically, the earlier Isakovo and Serovo were described as egalitarian, matrilineal large-game hunters, who began to incorporate fish into their diets during the Serovo period. Over the course of the Neolithic, Cis-Baikal groups such as the Kitoi and Glazkovo began to incorporate increasing quantities of aquatic resources into diets, as well as shifting their terrestrial hunting focus to smaller animals. The Kitoi and Glazkovo also possessed social systems that were markedly different from those of the Isakovo and Serovo, as they included elements of hierarchy and inequality, particularly among the sexes. This was particularly apparent with regard to Kitoi mortuary protocols, however Glazkovo mortuary ritual also suggested some degree of vertical differentiation among individuals.

Responses to Okladnikov

The Okladnikov model elicited a number of responses from the Russian academic community after its introduction in the 1950s. Contemporaneous and subsequent researchers raised a number of concerns, particularly in regards to chronological ordering of the culture complexes, and produced their own models (Figure 3). One of the first scholars to critique the Okladnikov model was M.M. Gerasimov (1955), who proposed a number of changes based on his review of Okladnikov's data as well as his own craniometric studies. Gerasimov argued that Kitoi crania exhibited more protomongoloid features than did Isakovo and Serovo crania, indicating that the Kitoi should be placed at the beginning of the cultural sequence (Weber 1995:8). Additionally, the craniometric data suggested that a substantial amount of time likely separated the Kitoi and Isakovo. Gerasimov also disagreed with the cultural differentiation of the Isakovo and Serovo, arguing that overriding similarities in mortuary protocols and artifact styles dictated their classification as one cultural unit. He also observed similarities between Serovo and Glazkovo material culture, and suggested that the former directly preceded the latter (Weber 1994:8).

Attempts to correlate pottery styles between mortuary and habitation sites also resulted in a number of challenges to the Okladnikov model. In 1964, L.P. Khlobystin argued that both Net and Comb style pottery (associated with the Serovo group) and Posol'sk style pottery (argued to have been associated with Kitoi) were found in the same stratigraphic layer at the Ulan-Khada habitation site (Layer IX) (Weber 1995:123). This stratigraphic association suggested to Khlobystin that the Kitoi and Serovo had coexisted temporally within the region, even utilizing the same sites. Further, he noted that Kitoi graves were found exclusively on the left bank of the Angara, while Serovo graves only occurred on the right. Glazkovo graves, however, were found on both sides. This spatial patterning led Khlobystin to suggest not only that two distinct cultures had formed on either side of the Angara in the

Middle Neolithic, but also that they had united later to form the Late Neolithic-Early Bronze Age Glazkovo.

G.V. Sinitsyna (1986) and N.A. Savel'ev (1989) performed typological analysis of pottery styles found in the habitation sites of Gorelyi Les, Nizhne Seredkino, Pad'-Shelot, and Ust'-Belaia. The Net-Impressed I style was found in two main forms, one oval and one miter-shaped; these two types were associated with the Isakovo and Serovo groups, respectively. Their coexistence in the same stratigraphic layers led both Sinitsyna and Savel'ev to also argue for a combined Isakovo-Serovo culture, which existed from the Early through the Middle Neolithic. The Khaita style (also associated with the Isakovo/Serovo) often occurred with the Net-Impressed I style, and followed the same spatial and chronological distributions. The Posol'sk style, which was weakly associated with the Kitoi group, was found in sites across the Cis-Baikal. Entering the Late Neolithic, the Ust'-Belaia styles (I, II, and III) were associated with the Glazkovo groups, based on indirect radiocarbon dating of habitation sites. The Comb-Impressed style was associated with the Serovo group, and according to Savel'ev, was also documented in Central Siberia. The Podostorozhnoe style was described as a geographic variant of the Comb-Impressed style, its distribution limited to the Angara valley. Ust'-Belaia II and Net-Impressed II styles were also attributed to the Late Neolithic. Based on these typological associations, Sinitsyna and Savel'ev combined the Isakovo and Serovo into one cultural complex, which they argued had existed in the Cis-Baikal throughout the Neolithic period. The Kitoi group was believed to have occurred only in the Middle Neolithic, when they coexisted with the Isakovo/Serovo. The Glazkovo culture was relegated to the Early Bronze Age.

V.S. Zubkov focused his critique on previous associations of the Posol'sk pottery style with the Kitoi group. He argued that Posol'sk pottery could not be reliably associated with the Kitoi, as this style of ceramic had never been found in Kitoi graves. Further, Posol'sk pottery was found over a much broader geographic area than were Kitoi graves. His model also identified the Isakovo and Serovo groups as a single culture complex, and as the only contributors to the later Glazkovo. The

Kitoi were characterized as intruders to the region, who existed contemporaneously with the Isakovo/Serovo during the Late Neolithic.

Attempts to correlate archaeological material from Kitoi mortuary sites with habitation sites were conducted by G.M. Georgievskaia. She suggested that lower layers of habitation sites (Ust'-Belaia, Nikola, Sosnovyi Island, and Ust'-Ilim) produced materials reminiscent of Kitoi grave assemblages. She also noted similarities between Kitoi tool kits and those found in the immediately preceding Mesolithic deposits. As such, she argued that the Kitoi as well as the Serovo had Mesolithic origins, and that they coexisted in the region during the Early Neolithic. Georgievskaia also believed in cultural continuity, and similar to Khlobystin, suggested that both the Serovo and Kitoi had contributed to the formation of the Glazkovo in the Early Bronze Age (Weber 1995:131).

1.2.2 Recent Research

The publication of the first radiocarbon dates for the region revolutionized the culture history debate by providing the first independent means of dating materials from both habitation and mortuary sites. Mamonova and Sulerzhitskii (1986, 1989) published the first set of radiocarbon dates from the Cis-Baikal, a series of 117 determinations from ancient human bone samples. While these authors supported the cultural classifications proposed by Okladnikov, their new radiocarbon dates led to the invalidation of Okladnikov's chronological progression of cultures by producing three major revelations: 1), that the Cis-Baikal cultures were substantially older than suggested by Okladnikov, 2) that the Glazkovo culture persisted for 2 to 3 times longer than previously hypothesized, and 3), that the Kitoi dated to the sixth millennium BC, and preceded the Isakovo group (Weber 1995:136). These radiocarbon dates produced important new data regarding the progression of cultures in the Cis-Baikal, but the debate persisted. A brief survey of culture history models suggested by contemporary researchers elucidates this point.

O.I. Goriunova's model of the Cis-Baikal Neolithic and Bronze Age was based on data from her excavations in the Little Sea region as well as work of previous scholars. In this regard, Goriunova follows Khlobystin, but differs by dating the beginning of the Neolithic roughly 500 years earlier (Weber 1995:132). Goriunova, like many earlier researchers, views the Isakovo and Serovo as one culture complex, and also sees continuity between these Isakovo-Serovo groups and the Early Bronze Age Glazkovo. While she argues that the Kitoi were a distinct group, Goriunova believes that the Kitoi and Isakovo-Serovo developed in parallel until the Early Bronze Age (Goriunova 2003:25). This supposition is based on stratigraphic association of archaeological materials, some of which exhibit a mix of Isakovo-Serovo and Kitoi characteristics. While this model is in direct conflict with radiocarbon dates obtained from Kitoi graves by Mamonova and Sulerzhitskii, Goriunova has offered no plausible solution to this discrepancy.

One of the most active field researchers in the recent past, V.I. Bazaliiskii has conducted extensive excavations of mortuary sites throughout the Cis-Baikal region. His model is based primarily on grave assemblages, and is generally congruent with the radiocarbon evidence published by Mamonova and Sulerzhitskii. The most distinctive feature of this model is his acceptance of a bimodal distribution of radiocarbon dates obtained from Cis-Baikal graves, earlier identified by Weber (1995) and Weber et al. (2002). This bimodality is the result of no Cis-Baikal graves having been dated to the Middle Neolithic, between ~5900 to 5300 BP (Bazaliiskii 2003:38). This bimodality has motivated Bazaliiskii to divide the Cis-Baikal Neolithic into Early and Late periods. He argues that the Kitoi were the sole inhabitants of the Cis-Baikal during the Early Neolithic. After the hiatus, in which no graves were constructed, Bazaliiskii identifies four mortuary traditions based on variability in artifactual material and mortuary ritual, which were generally limited to specific micro-regions. The Isakovo and Serovo groups were represented by graves in the Angara valley, the Archaic culture complex was limited to the Upper Lena river region, and the Late Serovo group was found on the west coast of Lake Baikal. According to Bazaliiskii, Isakovo burials were oriented diagonally to the river, with heads upstream; Serovo burials were positioned perpendicularly to the river, with legs towards the water; the Archaic group of the Upper Lena exhibited graves with the same orientation as the Serovo, but included multiple burials; multiple interments, as well as graves arranged in rows were characteristics of Late

Serovo graves (Bazaliiskii 2003:44-45). Glazkovo graves are attributed to the Bronze Age, and characterized by the appearance of metal artifacts, anthropomorphic effigies, as well as burials in flexed or squatting positions. While the period between ~5900 and 5300 BP is simply classified as a hiatus, with no suggestions provided as to the mechanisms behind it, Bazaliiskii supports a complete replacement of the Cis-Baikal population at the Neolithic–Bronze Age transition period, rather than any genetic continuity of groups within the region (Bazaliiskii 2003:49).

I.V. Aseyev (2002) has recently suggested one of the more radical culture history models by reevaluating the work of earlier Russian scholars in the context of available radiocarbon dates. In sharp contrast to Okladnikov's unilineal succession of cultures, Aseyev suggests long periods of cultural coexistence occurred during the Baikal Neolithic and Early Bronze Age. He argues that the Kitoi were the first group to appear in the region, where they existed for nearly 5000 years. Throughout this period, they coexisted with the Isakovo, Serovo, and Glazkovo for approximately 3000 years (Aseyev 2002:64). During this time, he contends, the cultural complexes interacted, and underwent mutual transformations as a result (Aseyev 2002:69). While Aseyev's analysis includes graves from both the Cis-Baikal and Trans-Baikal, and as such is not entirely comparable with models formulated specifically for the Cis-Baikal, his findings are rather unconvincing. The sources of his radiocarbon dates are not well cited, and the chart in which they are summarized is somewhat misleading, as dates which are actually in radiocarbon years BP are labeled in years BC. This creates additional confusion, and weakens Aseyev's overall argument. In addition, his radical rethinking of such an immense archaeological collection as that from the Baikal region calls for a provision of more substantial detail than that contained within a brief 12-page article.

Baikal Archaeology Project

While radiocarbon dates published in the late 1980s by Mamonova and Sulerzhitskii (1986, 1989) helped researchers to refine the chronology of the Cis-Baikal region, these dates also identified a temporal discontinuity in mortuary activity during the seventh millennium BP. The identification of this discontinuity

(Weber 1995) resulted in the formation a large multi-disciplinary research group, involving scholars from around the globe. This initiative, entitled the Baikal Archaeology Project (BAP) has taken a scientific approach characterized by the use of extensive radiocarbon dating, chemical, osteological, and genetic analyses. The project's methodology thus compliments the more traditional Russian approach based primarily on typological classifications of archaeological materials. This cooperative research initiative has recently excavated three mortuary sites, including Kurma XI, producing the most comprehensive dataset yet available for the region.

Since 1993, the BAP has produced a large amount of useful data that has refined our understanding of the culture chronology and continuity in the Baikal region. This new conceptualization originally featured the identification of the same hiatus in mortuary activity as described above (Bazaliiskii), and similarly split the cultural groups into pre- and post-hiatus phenomena. Since then, BAP research has focused on documenting these pre- and post-hiatus adaptations, in an attempt to explain the hiatus by an effective comparison between these two groups. As such, pre-and post-hiatus populations have been assessed on the basis of diet and resource procurement, mobility, health, and demography, topics not comprehensively examined by earlier scholars. This new research has benefited the archaeological community, not only by producing valuable new information, but also by provided a conduit for meaningful dialogue between Russian and Western scholars, as many BAP publications are published in both English and Russian. The latter has resulted in unprecedented access to the antiquity of the Cis-Baikal region for English speaking researchers. In light of these developments, a short summary of new information regarding resource procurement and diet, osteobiography, and mtDNA analyses is provided below.

Resource Procurement and Paleodiet

Some of the first analyses conducted by BAP researchers focused on resource procurement. In 1993, Weber et al. examined seal teeth found in both mortuary and habitation sites from the shores of Lake Baikal, while Weber et al. (1998) revisited this study in order to contextualize and evaluate their prior hypotheses regarding seal procurement in the region. Based on the analysis of dental annuli from these seal canines, the authors were able to estimate that most seals harvested by Neolithic and Bronze Age hunters were either very young or older animals killed predominantly between March and June. The demographic profile of harvested seals was attributed to the distribution of seals on the lake during this time of the year, suggesting a predominantly seasonal activity. Weber et al. (1998) also argued that sealing increased in popularity in post-hiatus times, but was of marginal importance to subsistence throughout the Middle Holocene.

The diets of pre- and post-hiatus groups have been addressed primarily through chemical analysis of bone tissue samples. Stable isotope ratios, more specifically those of nitrogen ($\delta^{15}N$) and carbon ($\delta^{13}C$) in human and faunal bone, have been useful for discriminating proportions of aquatic and terrestrial food resources in Cis-Baikal paleodiets. The first such study regarding Cis-Baikal paleodiets, although very preliminary in scope, was conducted by Lam in 1994. Lam discovered that $\delta^{15}N$ values were high for among Kitoi, Isakovo/Serovo, and Glazkovo individuals, suggesting that all groups had relied on aquatic resources for subsistence; this refuted the earlier hunting versus fishing dichotomy proposed by Okladnikov. Katzenberg and Weber (1999) followed up with a more detailed study, utilizing stable isotope ratios collected from both human (ancient) and faunal bone (modern) throughout the Lake Baikal region. They discovered enriched $\delta^{13}C$ values in bone samples from Upper Lena peoples, indicating utilization of predominantly terrestrial herbivores, while those living closer to Lake Baikal seem to have incorporated more littoral and lagunal fishes into their diets.

Variability in nitrogen stable isotope ratios ($\delta^{15}N$) in faunal samples is generally influenced by trophic level; aquatic species tend to exhibit higher $\delta^{15}N$ ratios due to the larger number of trophic levels found in aquatic environments. Overall, human nitrogen signatures were highest in individuals from cemeteries in close proximity to productive fish habitats. Pre-hiatus groups, however, likely consumed a narrow range of foods, while the diets of the post-hiatus Glazkovo were much broader, incorporating many types of food resources.

This study also produced some preliminary information regarding group mobility and social structures. Location-specific signatures of Kitoi samples suggested that this group practiced low residential mobility, but also likely possessed an endogamous (closed) social system; people from outside the area would have introduced different isotope ratios into the local populations, creating an 'averaging' effect. Serovo-Glazkovo groups, on the other hand, did exhibit 'averaged' signatures, with less regional and inter-individual variation in stable isotope ratios. As such, the post-hiatus groups were likely more residentially mobile, and individuals were likely exchanged among groups (exogamy).

While stable isotope analyses refuted the hypothesis that only post-hiatus groups engaged in fishing, they did identify a varying reliance on fish between pre- and post-hiatus groups. Weber (2003) assessed the availability of aquatic resources to Holocene hunter-gatherers in the Cis-Baikal, and argued that the spatial distribution and relative abundance of fish species was highly variable, due to differential hydrobiology. As a result, different species likely varied in their importance for subsistence (Weber 2003:64). His analysis partitioned the Baikal region into portions based on distinctions in hydrological characteristics, four of which were found within the study area. The first section of the Angara River, from the lake to the confluence at the Irkut River, showed influence from the hydrobiology of Lake Baikal and was hypothesized to have produced large quantities of fish. The second section, from the confluence of the Irkut river to the confluence of the Oka river likely contained smaller fish populations, while the third section, the region below the confluence of the Oka, seemed to have been more productive (Weber 2003:64). With regard to Lake Baikal itself, the lacustrine environment contains a number of different ecological zones due to the large size and depth of the lake. As a result, Lake Baikal was described as highly variable in terms of the distribution of fish species, although the large numbers of littoral and lagunal fish were seen as important resources for Middle Holocene groups (Weber 2003:64).

Osteobiography

Osteological data compiled and analyzed by Link (1998, 1999) resulted in the first models of community health and demography for the Cis-Baikal Middle Holocene. Link's data were collected from two of the major Neolithic cemeteries in the Cis-Baikal region; Lokomotiv, associated with the pre-hiatus Kitoi group, and Ust'-Ida I, a post-hiatus Serovo/Glazkovo site (Figure 1). He observed that cases of hypoplastic enamel defects (enamel hypoplasia) were common to individuals in the pre-hiatus Kitoi population, particularly women and children. Further, the number of infant burials was relatively smaller in the pre-hiatus Lokomotiv cemetery as compared with the post-hiatus Ust'-Ida I. Link interpreted this as evidence that Kitoi populations suffered from lower birth rates as a result of a high weaning age. While males were more numerous than females in the Kitoi cemetery, females appeared to have been nutritionally disadvantaged, which may have contributed to the low Kitoi birth rates. Over the long term, late weaning and low birth rates could have resulted in population stagnation or decline of the Kitoi (Link 1999). He also suggested that Kitoi social organization might have been very complex and/or rigid, possibly resulting in an inability or refusal to adapt, leading to their demise as a cultural group. As such, this analysis supported Weber's initial hypothesis (1995) that the Lokomotiv individuals were under some form of stress, whether from social, biological or environmental factors. The Serovo-Glazkovo, conversely, appeared to have higher birth rates as the result of a lower weaning ages and closer birth spacing. In addition, Link hypothesized that the post-hiatus groups may have possessed a more flexible, egalitarian social system that allowed them better adapt to changing environmental or social circumstances, which, in concert with high birth rates, produced an overall population increase in post-hiatus times.

In contrast to Link, Lieverse (2005) advocates a different view. Her results suggest that hypoplastic defects were indeed more prevalent in pre-hiatus groups, but that both pre- and post hiatus adaptations possessed similar levels of overall health, which are generally congruent with other hunter-gatherer populations. Further, individuals who exhibited hypoplastic defects and those who did not were equally successful in reaching adulthood, suggesting some form of social equality may have influenced food distribution within the group. Interestingly, this study also revealed that instances of osteoarthritis, often the result of repetitive stress and/or high levels of mobility, occurred in similar levels between the Kitoi and Serovo-Glazkovo, although in variable locations within the body. As such, it seems that both groups engaged in similar levels of mobility, although it was not possible to distinguish residential mobility from logisitical mobility, and Lieverse suggests that fluctuations in the availability of food resources likely resulted in changes in mobility patterns for both cultural groups (Lieverse 2005:181). Lieverse also demonstrates that fewer early Serovo and Glazkovo individuals endured more infrequent periods of stress than did their descendants (Lieverse 2005:179).

Mitochondrial DNA Analyses

Genetic science is a relative newcomer to the Cis-Baikal culture history debate. While Naumova and Rychkov (1998) completed some of the first work on genetic origins of ancient Cis-Baikal populations, more recently Mooder et al. (2003, 2005) have attempted to characterize better the pre- and post-hiatus populations by assessing mitochondrial DNA (mtDNA) haplogroup types. Mooder et al. (2003) argue that the correspondence of haplogroup types suggests a common populational origin for both Middle Holocene Cis-Baikal groups. Schurr (2003) agrees, but cautions that modern samples are collected from discrete populations, while ancient samples originate from chronological intervals only. As such, small numbers of ancient samples do not represent a discrete population in the same way that the modern samples would. This apparent limitation may not apply to analyses conducted on an inter-site bases, however, such as Mooder et al. (2005). This examination of mortuary variability and matrilineal affiliations (as determined by genetic haplogroup type) at the Kitoi cemetery of Lokomotiv suggested that the site likely was not organized according to matrilineal relations. In addition, single interments did not share haplogroup types with those interred in groups, which the authors, suggest may indicate an intra-community power structure, and that interment in a single grave may have been a status marker at Lokomotiv, although more analysis is needed to clarify this relationship. Despite the preliminary nature of this work, Mooder et al. (2005:13) conclude that matrilineal relations were responsible for little of the mortuary variability observed at Lokomotiv. The application of genetic science has only begun to explore the nature of the Cis-Baikal Holocene, however, and in the near future may provide a great deal of additional data that will allow a more comprehensive understanding of relationships within and between the pre- and post-hiatus groups in the Cis-Baikal Holocene.

1.2.3 Middle Holocene Adaptations and Mortuary Protocols

Below, I summarize the state of current research by describing the pre- and post hiatus populations, as they are currently understood. As a testament to earlier Russian scholars such as Okladnikov, many aspects of previous models are still applicable. As research is ongoing, the current understanding of the Cis-Baikal's culture history is in continual refinement, and the following does not represent the last word with regard to the cultural history of the Cis-Baikal.

The Kitoi

Mortuary and habitation sites belonging to the Kitoi group are most commonly located at the confluences of river systems, but are also known to occur on the western and southern shores of Lake Baikal. Kitoi groups likely inhabited small annual ranges, engaging in infrequent and/or short-range residential moves resulting in logistical foraging strategies and high individual mobility. These mobility patterns may have been seasonally dependant. Kitoi diets were characterized by the utilization of a narrower resource base than the later Serovo-Glazkovo, with an emphasis on aquatic resources (Weber et al. 2002:278). This residential pattern may have resulted in the depression of local food resources, and subsequently higher individual or residential mobility outside of the fishing season.

The Kitoi seem to have maintained closed social systems with few or no individuals moving among communities, even those situated in close proximity to one another (Weber et al. 2002). Demographic profiles of Kitoi cemeteries are characterized by an overrepresentation of males and an underrepresentation of juveniles. This may indicate later weaning ages, longer birth spacing and fewer children. Small numbers of senescents also suggest that Kitoi adults were less successful in reaching old age than their post-hiatus Serovo-Glazkovo counterparts (Link 1998).

Kitoi mortuary practices involved the interment of burials in deeply excavated pits, which rarely featured stone structures (Weber 1995). Burial positions were usually supine and extended, however prone and disarticulated burials also occurred. Most burials were oriented SW or NE and featured single individuals, but double or multiple graves were also common. Double interments were often arranged in a head-to-toe orientation, a distinctive Kitoi burial position, however vertical stacking was also practiced. Burials were frequently missing heads, which seem to have been removed prior to burial, as the first two cervical vertebrae were commonly missing. 'Stray' bones, which belonged to other individuals, were often present in Kitoi graves. One of the more characteristic features of Kitoi mortuary ritual is the common practice of covering the deceased with large amounts of powdered red ochre, which resulted in red staining of skeletal elements and associated sediment. Kitoi grave assemblages were highly variable with regard to quantity; burials of either sex contained as many as 200–300 items, or as few as none, but as a rule, larger quantities were associated with males. Common grave inclusions include composite fishhooks, incisors of Tarbagan marmot (*Marmota sibirica*), calcite rings, nephrite axes, arrowheads with asymmetrical barbs, antler 'tally sticks', bone and antler harpoons, bone spoons, spades, antler digging tools, and split boar tusk pendants.

The Serovo-Glazkovo

There has been persistent debate regarding the relationships between the Isakovo, Serovo, and Glazkovo. Most Russian and Western scholars following Okladnikov have disagreed with his original division of the Isakovo and Serovo into two groups, and in concordance with these views, these two are currently termed Serovo. The distinction between the Serovo and Glazkovo group is also unclear. Past researchers have generally agreed that there was likely some degree of continuity between the Serovo and Glazkovo, based on overriding similarities in mortuary practice and material culture. Here the agreement ends, and each scholar has lumped or split these cultures based on their own interpretations of the available archaeological evidence. Similarities in mortuary ritual and material culture may indeed suggest a close relationship between the Serovo and Glazkovo, but any continuity between the two groups is more likely the result of a complex series of interactions, rather than simply two successive cultures (Weber et al. 2002:288–89). Recent research based on radiocarbon dates obtained from Cis-Baikal burials throughout the Middle Holocene have suggested that the Serovo and Glazkovo groups were chronologically distinct, however, and as such should be referred to separately (McKenzie 2006). Currently, the relationship between these two groups remains poorly defined, however, and as such they are discussed together here.

Serovo-Glazkovo mortuary and habitation sites are located throughout the Cis-Baikal, most commonly adjacent to the Angara and Lena rivers, or Lake Baikal. The Serovo-Glazkovo seem to have been composed of smaller groups than the Kitoi, and these groups likely engaged in residential moves that were more frequent and/or over longer distances. This mobility pattern is supported by homogeneous stable isotope signatures, which have also suggested that there was a regular exchange of individuals among Serovo-Glazkovo groups (Weber et al. 2003b). Post-hiatus diets were characterized by the utilization of a wider range of resources, specifically a lesser reliance on aquatic foods and frequent moves to areas where a number of resources could be easily exploited. This seems to have ensured that Serovo-Glazkovo individuals always had access to a supply of food. Fewer instances of systemic stress markers in skeletal remains attest to the occurrence of few food shortages (Link 1998).

In Serovo-Glazkovo cemeteries, older individuals were present in expected numbers, as were children. This, in conjunction with the observation of few systemic stress disorders, has been interpreted as a natural consequence of equal access to nutrition and earlier weaning ages, resulting in the birth of large numbers of children (Link 1998). While the Serovo-Glazkovo likely lived in smaller residential groups as compared to the Kitoi, the number of burials known throughout the Cis-Baikal suggests that they may have outnumbered the Kitoi by a factor of four (Weber et al. 2002).

Serovo-Glazkovo burials were also interred in excavated pits, which were generally shallower than those of the Kitoi. These graves commonly featured stone architecture in the form of slabs lining grave pit walls or filling the pit, and were likely covered in either flat slabs or boulders (Weber 1995). Grave orientation was somewhat variable, which has contributed in part to the division of this group into Isakovo/Early Serovo/Late Serovo/Archaic by some scholars. At the Ust'-Ida I cemetery, for example, burials attributed to the Serovo were positioned with heads pointing upstream, while Glazkovo burials were oriented with heads pointing downstream. Glazkovo burials near Lake Baikal were often oriented west–east, and frequently arranged in rows. Single interments were most common but multiple burials, layered both horizontally and vertically, also occurred. Burials were usually found in extended supine position, with hands resting either on the abdomen or alongside the torso. Some degree of lower limb flexion was not uncommon, although some Glazkovo burials appeared to have been interred in fully flexed, or sitting positions. Grave goods were generally balanced with regard to type and quantity, and included remains of bows, arrow points of various styles, lithic knives, scrapers, nephrite axes and adzes, nephrite rings and disks, composite fishhooks, paste beads, and bone tools. Metal items, such as copper knives, needles, and rings were unique to Glazkovo graves. Male and female assemblages were roughly equal in terms of quantity, but qualitatively different, as males were interred with hunting equipment, while women were associated with domestic implements (Weber 1995).

1.3 Summary

This chapter has emphasized that the culture history of the Cis-Baikal Holocene has been characterized by debate, and that a certain amount of disagreement persists despite the introduction of radiocarbon dating techniques, as well as stable isotope, osteobiography, and genetic analyses. The chronological position of the Kitoi group has arguably been the most contentious item. Before the introduction of radiocarbon dating to the region, the Kitoi were believed to have coexisted temporally with the Isakovo or Serovo groups. Mamonova and Sulerzhitskii, by using an extensive series of radiocarbon dates, established that the

Kitoi existed much earlier in the Neolithic, beginning as early as the 7th millennium BC. This view was reflected in subsequent models, notably those of Bazaliiskii and Weber, who have also argued for Kitoi presence in the Cis-Baikal beginning in the 8th to late 7th millennium BP. Other researchers remain reluctant to accept an early date for Kitoi arrival in the Cis-Baikal. Goriunova, in particular, supports the stratigraphic associations from Ulan-Khada as well as other habitation sites. Unfortunately, she offers no explanation to account for the large number of radiocarbon dates available from secure archaeological contexts, which strongly support the antiquity of the Kitoi culture.

The issue of cultural continuity in the Cis-Baikal also persists as a subject of debate. While Okladnikov originally argued for a continuous linear progression, where Isakovo, Serovo, Kitoi, and Glazkovo existed sequentially with no overlapping, subsequent researchers have argued for various degrees of cultural continuity. Most models feature an uninterrupted relationship between the Isakovo and Serovo, as well as some form of continuity between the Serovo and Glazkovo. Bazaliiskii has argued the opposite, however, suggesting that there is no genetic or cultural continuity between the Isakovo/Serovo and the Glazkovo, although this argument is based solely on archaeological materials. Views regarding the relationships between the Kitoi and Glazkovo have also been conceived of in a number of different ways. Khlobystin saw the Kitoi as coexisting with the Serovo, and through a cultural synthesis, produced the later Glazkovo complex. Sinitsyna, Savel'ev, and Goriunova have argued for the parallel existence of Kitoi and Serovo groups, with no Kitoi contribution to the subsequent Glazkovo. Bazaliiskii and Weber also view the Kitoi as non-continuous with the Glazkovo, but all having placed the Kitoi much earlier in the Neolithic, ruling out coexistence with, or contribution to, other groups. In sum, the relationship among these archaeological cultures is still very much disputed, and despite the intensive fieldwork in the region in the last 50 years, very little is known about the processes that drove the culture history in the Cis-Baikal. The remainder of this thesis is directed towards interpreting social organization based on patterns of mortuary variability at Kurma XI, a Glazkovo cemetery in the Little Sea region.

Chapter 2

Theoretical Background and Approach

This chapter provides the theoretical framework necessary to analyze the observed mortuary variability at the Kurma XI cemetery, and interpret aspects of Glazkovo social organization. First, as this thesis is a contribution to the Baikal Archaeology Project, I briefly outline the theoretical methodology of this larger research initiative. Next, I provide a brief examination of aspects of social organization relevant to archaeological inquiry, following which I discuss aspects of social organization frequently expressed in mortuary ritual. Finally, I provide the specific theoretical and methodological approach utilized in this thesis to examine mortuary variability at Kurma XI.

2.1 Baikal Archaeology Project – Theoretical Background

The goals and methodology of the Baikal Archaeology Project (BAP) are characterized by a synergy between theory and laboratory techniques. While prior culture change models were often environmentally deterministic, no evidence indicates that the Cis-Baikal was subjected to large climatic shifts since the Pleistocene. In addition, agriculture was not a factor in the region during the middle Holocene. As such, the BAP recognized that stimuli for change in hunter-gatherer cultures could not be viewed simply as the result of environmental changes or the encroachment of agriculturists. In response, the BAP has proposed to "develop models that are specifically relevant for the Holocene and speak to places where food production never attained dominance" (Weber et al. 2003a:3). Specifically, the authors propose a behavioral or evolutionary ecological approach, emphasizing individual strategies for subsistence and reproduction. This perspective will, in theory, provide a pattern of individual actions within the community by compiling individual life histories. In this fashion, the BAP proposes to use excavated human remains to extract rich data that will counteract the effects of small sample sizes, and provide models applicable to boreal forest hunter-gatherers.

2.2 Archaeological Approaches to Social Organization

Cemeteries, as intentionally created sites, possess some of the highest-resolution data for studying various aspects of the past. They are better suited to evaluating culture change over time than habitation sites, as the former represent deliberate behaviors that occurred at a single point in time rather than proxy records of human activities over an average of numerous synchronous events. New Archaeology has brought renewed interest to the possibility of determining aspects of past societies' social organization through positivist, processual approaches (O'Shea 1984:1). In contrast to the preceding culture-historical approaches, processual techniques for examining social organization from mortuary remains are based on the search for archaeologically observable patterns in mortuary treatment that serve to distinguish individuals. Over the preceding four decades, many researchers have proposed a variety of methods to analyze archaeological materials from mortuary contexts. Below, I discuss aspects of social differentiation that pertain to the research questions posed here, as well as the specific components of mortuary ritual thought to have been patterned by social factors.

One of the most important concepts for understanding social organization is Goodenough's (1965) *social persona* of the deceased. He defined this as a composite of an individual's numerous social identities that would have been recognizable in life, and would merit mortuary distinction in death (Binford 1971:17). As each individual is connected to numerous others by a series of relationships, social structure can be understood as the framework of interrelationships among personae, or members, of a society. Saxe (1970:4, cited in O'Shea 1984:9) presents a similar argument, stating that, "when archaeologists excavate a set of burials they are not merely excavating individuals, but a coherent social personality who not only engaged in relationships with other social personalities but did so according to rules and structural slots dictated by the larger social system". The relationships among community members are generally contingent on only a select few identities (Binford 1971:17), but these identities bind individuals through a series of rights, duties, and behaviors contingent on status (Goodenough 1965:6). These duty-status relationships, in part, require that the deceased be afforded mortuary treatments that are congruent with the nature of their interrelationships with community members, or more specifically, their social position. "Therefore, it is reasoned that patterning in the variability of mortuary remains will reflect a consciously selected set of distinctions that will be congruent with the social positions held by the deceased in life" (O'Shea 1984:10). In this way, the number of distinct symbolic mortuary treatments observed could be used as proxies for determining the number of social positions in a living society (Binford 1971:17). O'Shea (1984) cautions, however, that the relationship between mortuary distinctions and social positions is not isomorphic, a stipulation that has been supported by the recent work of Carr (1995). Parker Pearson (1982) also calls for prudence, arguing that mortuary practices should not be viewed as direct reflections of social ties, but rather as idealized representations of relationships among individuals.

The complex web of interrelationships that compose societies can be most generally distinguished according to horizontal or vertical aspects. Horizontal relationships commonly imply relative equality between entities, such as those within and among kin groups, lineages, and moieties. Vertical relationships, conversely, suggest a degree of power differentiation between or among entities that may serve to control access to restricted or rare resources. Vertically differentiated societies place individuals into higher status positions in two ways. First, individuals may rise to positions of power according to personal qualities such as age, sex, personal achievements, or talents, in other words, by achieving their status. Conversely, high social positions may be inherited from previous generations in ascribed status systems. These societies bestow high status positions according to familial relations, rather than an individual's personal deeds. Frequently, societies with less complex social structures delegate status on an achieved basis, differentiating individuals primarily by personal qualities, such as age, sex, and achievements or talents (Binford 1971:18). Conversely, more complex systems have been argued to ascribe distinction based on abstract qualities that divide the society as a whole. It should be noted however, that these two systems of status acquisition are not mutually exclusive, and may exist concurrently within the same society. In other words, the overall complexity of the society's organization can be identified as causal agent for observed differentiation in mortuary treatments (Binford 1971). In this regard, O'Shea suggests three primary relationships that serve to link aspects of social differentiation with variability in burial treatments. First, he states that "mortuary differentiation is patterned, and its elements are integrated with other aspects of the sociocultural system" (1984:21). Second, he argues, "the mortuary differentiation accorded to an individual, although not necessarily isomorphic, is consistent with his social position in the living society (1984:21). Third, "the complexity of the system of mortuary differentiation will increase with the complexity of the society at large" (O'Shea 1984:21).

2.3 Mortuary Evidence of Social Differentiation

Archaeologically, aspects of social differentiation are interpreted by the type and quantity of mortuary distinctions observed within a given sample, usually a single cemetery. O'Shea (1984) suggests a number of assumptions that serve to connect mortuary evidence with aspects of human social behavior. First, he stipulates that all societies utilize a regular set of prescriptions for disposing of the dead. Second, O'Shea states that a mortuary population will exhibit the demographic and physiological characteristics possessed by the original living population. Third, each interment represents the systematic application of a series of prescriptive and proscriptive directives relevant to that individual. O'Shea also explains that the nature of the society will circumscribe mortuary treatment of the dead, and this treatment will be consistent with that of the individual's social position in life. Finally, elements within a burial context will have been utilized within the society at the time of interment (O'Shea 1984:33–37). These principles act as a general framework to discuss further aspects of mortuary analysis.

Given the above assumptions, the question becomes, which aspects of mortuary treatment can be interpreted as resultant of social organization, and what do these treatments symbolize in social terms? In this regard, numerous researchers have utilized cross-cultural ethnographic studies to produce generalizations about the relationship between specific aspects of mortuary treatment and social differentiation. One of the first to address this relationship was Binford, who argued that social differentiation in mortuary treatments was manifest according to a number of axes, namely age, sex, rank, or social position, and social affiliations within the larger society (1971:17). More specifically, he noted that distinctions among individuals according to age were often represented through the spatial location of the burial, while sex was more commonly distinguished by differences in grave inclusions (Binford 1971:22). Social position, on the other hand, was symbolized by a wide variety of treatments, but the quantity and quality of grave inclusions as well as the spatial location of the grave were the most common status markers (Binford 1971:23). Often, certain items or sets of items served as 'badges' of distinction. He also noted that an unusual manner of death might alter the regular symbolic representation of identities in a mortuary context, particularly through changes to body treatments as well as grave location (Binford 1971:23).

These basic tenets proposed by Binford were complemented by the work of a number of subsequent researchers. Among these, Tainter (1977), Goldstein (1976), and Carr (1995) provide a few insights pertinent to this thesis. Tainter (1977:332) argued that the death of high status individuals commonly results in large-scale disruption within a society, leading to increased corporate involvement in disposal activities. As such, higher levels of energy expenditure in mortuary ritual, commonly manifested in the size and type of the disposal facility, body treatment, and the nature of grave inclusions, can be directly correlated with individuals of high status. Goldstein (Goldstein 1976:61, quoted in O'Shea 1984:13) also provided some valuable findings for interpreting social determinants of mortuary differentiation, in particular a hypothesis stating that corporate groups may legitimize their exclusive use or control of scarce or "crucial but restricted resources" through the maintenance of a permanent, specialized, and bounded disposal area.

Finally, Carr (1995:106) conducted a comprehensive cross-cultural examination of mortuary practices to create a set of inductively determined generalizations to characterize the correlations between mortuary treatments and their social, "philosophical-religious", and other causal agents. He established that correlations between social and philosophical-religious factors and mortuary variability were not arbitrary, but in fact exhibited some degree of consistent cross-cultural patterning (Carr 1995:150). Specifically, he reported that sex distinctions were most commonly expressed through grave inclusions, while vertical status differentiations were represented by grave form, as well as the degree of energy expended during the treatment. Grave furniture was also determined to symbolize personal aspects of the deceased, as well as religious beliefs regarding death and the afterlife. In addition, Carr suggested that social factors most commonly determine the location of the burial, the number of different types of burial treatments, the number of burials within a grave, grave inclusions, as well as the overall energy expended. Differences in status were reported to be the primary axis for determining mortuary treatments in band-level hunter-gatherers.

Carr's findings provide an excellent summary of processual views on the relationship between mortuary practice and social distinctions. Table 1 contains a summary of his cross-examination of mortuary treatments and their associated patterning agents. Carr identified a number of social distinctions that were directly responsible for mortuary patterning of the associated variables in at least 12 of the 31 (>38%) societies sampled from the Human Resource Area Files (HRAF; a non profit research agency that collects comparative data on human behavior, society, and culture). Given the extensive set of variables used by Carr to characterize both aspects of mortuary treatment as well as their patterning agents, the fact that any degree of congruency between social and philosophical and religious factors and mortuary treatments is significant. As such, while 38% may seem somewhat low, in fact the large number of variables combined with the diversity of societies sampled indicates that some aspects of mortuary treatment can be viewed as cross-cultural norms representative of specific aspects of social organization. We should note, however, that in many cases the social aspects listed above did not pattern the associated mortuary treatments, and as such we should apply his findings to archaeological materials cautiously. Interestingly, a recent critique of Carr (David and Kramer 2001) expressed more reservation regarding his methodology than his conclusions. In general, however, Carr provides a basis for interpreting specific social features according to observed variability in mortuary treatments, which can be used to interpret the Kurma XI data set.

2.4 Approach

The method of analysis of mortuary variability at Kurma XI follows the recommendations of O'Shea (1984:48), who advocates a dimensional approach that focuses on partitioning the mortuary population into meaningful subsets. He suggests that mortuary analysis should proceed through four discrete stages (O'Shea 1984:49):

1. A search for culturally generated constraint or patterning in the distribution of funerary attributes.
2. The description of each differentiated subset of the funerary population in terms of the referent dimensions of age, sex, frequency, and spatial distribution.
3. The classification of each differentiated subset into general types of mortuary distinction–vertical, horizontal, and special status differentiation–using the referent dimensions and behavioral correlates.
4. The interpretation of each differentiated unit of the mortuary population, using behavioral correlates and appropriate models of social distinctions.

These steps provide an analytical framework for this thesis. O'Shea also provides a comprehensive set of variables that can be used to document the variability observed within a mortuary context, which are listed in Table 2. These variables incorporate the multi-dimensional approach advocated by (Saxe 1970) as well as the multi-scalar aspect supported by Cannon (2002) and Goldstein (1976). While these variables provide a rather extensive range of possible evidence for examining mortuary remains, not all variables were examined in this thesis. First, only demographic data such as sex and age determinations were available for the Kurma XI data set. Genetic, dietary, and pathological studies were incomplete at the time of writing. Similarly, no environmental analyses had been performed on Kurma XI samples, and these variables were therefore excluded. In addition, grave disturbance (discussed in Chapter 5) affected the majority of Kurma XI burials. As such, it could not be determined in all cases whether the location of items within the grave pit was the result of intentional placement or post-interment disruption by human or natural agents. For this reason, the micro-location aspect of mortuary ritual was also excluded from examination.

Binford (1971) has argued that in societies with low organizational complexity, personal qualities such as age, sex, and personal achievements likely provided the primary basis for social status distinctions. The Glazkovo of the Cis-Baikal have been characterized as groups of mobile hunter-gatherers with low levels of sedentism and small band sizes (Weber et al. 2002), and as such would most likely have made status distinctions according to personal qualities of the deceased. As age and sex are both primary axes of differentiation and are determinable using osteological methods, I included age and sex as dependent variables. Spatial distribution was also included as a dependent variable, following Cannon (2002), Goldstein (1976), McKenzie (2006), and O'Shea (1984).

At this juncture, it is also necessary to discuss quantitative methods. While many analyses of mortuary sites in the past three decades have utilized a broad range of statistical methods for pattern identification (Aldenderfer and Blashfield 1978, Hodson 1970, O'Shea and Zvelebil 1984, Rothschild 1979, McHugh 1999, Manly 1996), these statistical applications are not suitable for the Kurma XI data set. First, Kurma XI contained 24 burials, a sample size too small for statistical techniques such as cluster, factor, and principal component analysis. Vierra and Carlson (1981, cited in McHugh 1999:62) have pointed out that intensive multivariate techniques often produce abstract results, which may be difficult to interpret, as they often produce findings of seemingly greater precision that the original data set. While simple tests of significance, such as chi-square and Fisher's tests could be applied to the Kurma XI data set in theory, in practice these techniques may also produce confusion due to the small number of burials. In this case, the small sample size makes statistical methods difficult to apply, as they have the potential to support correlations that may not be culturally meaningful. On the other hand, correlations in a sample of this size that would be statistically meaningful will be obvious, rendering the statistical tests redundant. As such, a simple comparison of aspects of mortuary treatment with independent variables was selected as the preferred method to analyze the Kurma XI data set.

Finally, the temporal aspect of use at Kurma XI also requires examination. O'Shea argues that, "if mortuary remains are to be understood directly, it is necessary to assume that only a single set of cultural directives governing mortuary behavior was in operation during the duration of the cemetery's use. Any temporal effects that alter either the rules governing mortuary differentiation or the manner through which such differentiation was manifest will distort the cumulative picture" (O'Shea 1984:14). In other words, it is necessary to explore the temporal aspect of cemetery use in order to assess the degree to which chronological changes, in contrast to social and religious determinants, may be responsible for observed variability in mortuary ritual. For this reason, temporal patterns of use at Kurma XI are the subject of Chapter 4.

Chapter 3

Fieldwork Methods and Materials

In this chapter, I briefly explain the excavation methods utilized at the Kurma XI mortuary site. This encompasses the identification of graves on the surface, excavation techniques, and documentation procedures used to record archaeological and osteological data. I also discuss reports that were compiled after the completion of excavations.

3.1 Site Description

Kurma XI is located on the northwest coast of the Little Sea of Lake Baikal (Figure 2, Figure 9). The site was constructed on the southeastern slope of a small hill approximately 40 m in height, located approximately 500 m from the lakeshore. A variety of short steppe grasses cover the majority of the hill, while coniferous and deciduous trees are found on the northwestern face. A few bedrock ridges extending southwest–northeast (parallel to the hill's long axis) are visible on the top third of the slope. While generally steep, the slope is interspersed with a number of flat ledges or 'terraces' primarily found between the ridges of exposed bedrock. These areas are found on the upper portion of the hill's northeastern quarter.

3.2 Fieldwork Methods

A.V. Kharinskii completed the first excavations at the Kurma XI site in 1994. He identified 17 features on the modern surface, two of which were excavated (Sosnovskaia 1996). The first feature was a grave (Grave 8), while the second was simply a cluster of stones with no associated grave pit (originally designated Feature 9). The remainder of the site was systematically surveyed and excavated during the 2002–2003 field seasons by a joint expedition of the Baikal Archaeology Project (Project Director: A. Weber) and the Irkutsk Laboratory of Archaeology and Paleoecology, Irkutsk State University (Co-investigator: O.I. Goriunova) (Goriunova and Weber 2002, 2003b). These excavations resulted in the identification of 13 additional surface features (Figure 4), and the complete excavation of all features with the exception of one located in close proximity to a local Buryat prayer tree.

At the surface level, all features were identified by the presence of discrete clusters of stone cobbles. Some of these stones were partially covered with surface sediment and grass, while others were completely buried. Excavation trenches ranging in size from 3.0 x 3.0 m to 6.0 x 7.0 m were laid out so as to include the entire scatter of stones associated with each feature. The sod and sediment matrix surrounding these stones was carefully excavated until all surface stones were clearly visible *in situ*. At this point, a drawn horizontal plan of the surface scatter was drawn at 1:20 scale, following which the pavings were photographed extensively.

Following the completion of the Level 1 photographic documentation, the stones of the surface scatter were removed. If any new stones appeared, they were cleared of sediment, and the feature was drawn and photographed a second time. After the removal of all surface paving stones, the grave pit was identified by either the presence of stones around the pit's perimeter or by differences in color or composition of sediment. In general, sediment within the grave pit was finer, darker in color, and contained significantly less gravel than the surrounding sediment.

Once the pit boundaries had been identified, further excavations were directed towards the pit alone. Levels were assigned when excavation could not proceed deeper due to the discovery of additional stones, artifacts, or human remains within the grave pit. At each level a plan view of the grave pit was drawn, and photographs were taken. As the majority of artifacts and osteological remains were encountered at the burial level, additional photographs were taken. Following photographs the burial level was also drawn in plan view at 1:20 scale, as was the profile aspect of the grave pit.

After the completion of the drawing and photography, artifacts and human osteological remains were systematically removed and documented. An osteology technician collected human skeletal remains (Ardley 2002, Stratton 2003), while O.I. Goriunova oversaw the removal and documentation of artifacts. As most grave pits were originally excavated to the bedrock, the remaining sediment was excavated from the pit to ensure that all remaining fragments of osteological and archaeological materials were collected. Once the bedrock was exposed, the last suite of photographs was collected. Finally, all stones originally removed from the feature were stacked over a "footprint", whose length and width was similar in size to that of the grave pit. The approximate volume of the stones from each feature was thus easily estimated by multiplying the length, width, and height of the resulting "cairn".

In addition to excavation, A. Weber, H. McKenzie (archaeology teaching assistant), and B. Drouin (research assistant) extensively surveyed the site to create a topographic plan that included the location of all features and excavation trenches. Also, sediment samples were collected from each undisturbed feature. Briefly, the protocol demanded one sample from the center and one from the outside of the paving stone scatter at the first excavation level. Following the identification of the grave pit, samples were taken from the pit's center at each level.

3.3 Data Collection

A number of different data collection methods were employed during the course of excavations. In general, the collection of data was designed to correspond with the modules that form the core of the Baikal Archaeology Project's database. These modules grouped the collection of data into cemetery, feature, and burial levels, as well as grave inclusions. Briefly, the cemetery level module contains information regarding the location of the site with regards to landscape and topographic location, and information detailing the number and type of graves within the site. The feature level module contains information regarding the grave as an architectural container for the individual, or burial. The burial level module contains information regarding the presence of osteological remains, body treatment, preservation, and osteobiography. Finally, the grave inclusions module possesses information about the type, quantity, material composition, and original location of items recovered from a given feature. In the field, paper forms were used to record the data, while electronic forms were used to input observations into the project database. In addition to these, data forms were utilized to document the recovered human remains in more detail. These summarized data regarding burial position, skeletal completeness, identification of skeletal elements, as well as metric and non-metric data later used to determine age and sex of the Kurma XI burials. In addition, A. Weber systematically recorded general observations for each feature on audiocassette at each level, which were later transcribed. Finally, Canadian field school participants were required to create field journals that contained a complete record of their own observations during excavation.

A number of summary reports were compiled after the completion of excavations. First, osteological summaries containing descriptions of the osteological material from each burial were prepared (Ardley, 2002, Stratton 2003). These reports. included tallies of present and absent elements, preservation, burial position, and age and sex determinations where possible. O.I. Goriunova, the Russian director of field excavations, also produced two comprehensive reports written in Russian (2002 and 2003) summarizing all archaeological information collected from Kurma XI features. These were supplemented with an artifact list that detailed all items recovered from the site.

Finally, following the field season, H. McKenzie, B. Drouin and M. Metcalf (field school student) measured the overall length, width, and thickness of each artifact, while A. Weber photographed all archaeological finds. A.P Sekerin (Institute of the Earth's Crust, Irkutsk) supplied mineralogical determinations for all lithic items recovered from Kurma XI.

3.4 Summary

The above types of documentation provided the primary set of materials used in the production of this thesis. First, fieldwork summary reports prepared by Goriunova and Weber provided the information for comprehensive descriptions of each feature provided in Appendix A. I also drew upon information from drawn plans, photographic documentation, topographic survey, and osteological data forms. The artifact list compiled by Goriunova and the mineralogical determinations by Sekerin provided the basis for the analysis of grave inclusions. In cases where data were incomplete or contradictory, I consulted student field journals for additional clarification. In addition, Sosnovskaia published information regarding the two features excavated by Kharinskii in 1996. The level of detail provided in this short publication was comparable to the level of detail used in this thesis, and as such Grave 8, excavated by Kharinskii, was included here.

Chapter 4

Chronology

In this chapter, I establish the necessary chronological framework to analyze burials from Kurma XI. First, I place Kurma XI into the region's relative chronology by comparing mortuary ritual observed in Kurma XI burials with that documented at other mortuary sites in the Cis-Baikal. Then, utilizing an approach designed by Weber et al. (2005), I evaluate accuracy of radiocarbon dates derived from human bone samples to assess the duration and tempo of site use.

4.1 Relative Chronology

To evaluate the chronology of Kurma XI graves, I rely on the culture history model (Table 1, Figure 3) developed by Weber (1995) and Weber et al. (2002, 2005) (see Chapter 1). In general, grave pit and burial orientations, body position, and types of grave accoutrements have been regarded as the primary features for determining archaeological culture affiliations of Cis-Baikal graves, with a number of characteristics considered 'diagnostic' for each cultural group (discussed in Chapter 1). Therefore, in order to determine how the site fits into the regional chronology, it is necessary to briefly review these aspects of mortuary variability at Kurma XI, although an in-depth analysis of these data is the subject of Chapter 5.

Grave pit orientation, measured in degrees from north (0°) was somewhat variable at Kurma XI (Table 2). Of 24 grave pits, 4 (16.7%) were oriented north-northeast (0–45°), 14 (58.3%) to the east-northeast (46–90°), 3 (3 of 24, or 12.5%) to the southeast (91–135°), and 3 (3 of 24, or 12.5%) to the south-southeast (136–180°). Graves 19, 25, and 26 featured circular pits with no determinable orientation. With regard to orientation of the burial (Table 3), nearly all interments (17 of 21 burials, or 81.0%) were oriented southwest, between 181 and 270°. A few, however, were oriented to the northwest (4 of 21, or 19.0%). These included Burials 21, 22, 24, and 27. No burial orientation was determinable for Burials 19, 25, and 26 (3 of 21, or 14.3%), as the remains were disarticulated and interred in round pits. Three features

(Graves 2, 20 and 23) did not contain any preserved human osteological remains, and as such no burial orientations was determinable.

With regard to burial or body position (Table 4), four general types were observed at Kurma XI. Most common were those individuals found in extended supine position, which represented 70.8% (17 of 24) of burials, and included Burials 1, 3–6, 7-1, 7-2, 8, 10, 12, 13, 15–17, 21, 24, and 27). Three burials (3 of 24, or 12.5%) appeared to have been interred in a tightly flexed position (Burials 19, 25, and 26). Three additional burials (3 of 24, or 12.5%) were characterized by commingled skeletal elements (Burials 9, 14, 18) whose original burial positions, if not inhumed in a disarticulated state, were impossible to determine. A single burial (Burial 22) was found positioned on its right side, with the lower limbs slightly flexed (1 of 24, or 4.2%).

A large quantity of archaeological material was recovered from Kurma XI burials. In particular, those graves located in the southwestern portion of the cemetery along the base of the hill slope produced a number of unique and rare items that are already known in the literature (Goriunova and Weber 2002, 2003a, b). Among these unique and rare items was a cast bronze medallion featuring an anthropomorphic figure inside a ring, an inscribed child femur, a lithic fishhook decorated with a human face design, several large half rings of white nephrite, and a hammered silver ring. In addition to these unique and rare materials, more common adornments and tools, such as green nephrite adzes, axes and knives, disks from white nephrite and marble, arrow points of various styles and materials, bifaces, red deer tooth pendants, bone needles, spoons and points of various sizes and styles, barbed harpoons, and several copper items (knives and needles,) were also found in reasonably large numbers. While very common in Cis-Baikal mortuary sites such as KN XIV, cylindrical beads were found in only one grave (Grave 16). Interestingly, 8 of 17 graves located at the base of the hill contained metal items (Goriunova and Pavlova 2003), while only 8 metal items were recovered from 7 of the 78 graves at KN XIV (9.0%; Graves 18, 25, 52, 57, 62, 74, and 87). Kurma XI burials located at the base of the slope in the northeast portion of the cemetery yielded assemblages that were similar in character, but fewer in quantity and lacking rare and unique objects, as well as metal items. Most graves found on the upper terrace contained very few or no accompanying materials.

Also worthy of mention, red ochre was documented in four Kurma XI burials. The skeletal remains recovered from Graves 14 and 17 exhibited extensive red staining, as did the sediment matrix surrounding these burials. Minor red staining was observed in Graves 22 and 24, primarily in the thoracic area.

According to the observed mortuary variability at Kurma XI, the majority of burials seem to correlate well with the Glazkovo culture group in a number of respects (Goriunova 2002; Konopatskii 1982; Kharinskii and Sosnovskaia 2000). First, Glazkovo burials in the Little Sea region are oriented to the west or southwest, with minor but frequent variations (Kharinskii and Sosnovskaia 2000; Michael 1958; Weber 1995; McKenzie 2006). Most Kurma XI graves found along the base of the hill slope conform to this pattern, as did Feature 23 (found on the upper terrace), which was oriented almost exactly west–east (100°). Four burials (Burials 21, 22, 24, and 27), however, were oriented northwest, as was Feature 20. All five of these features were found in the upper terrace region of the cemetery. As such, features at Kurma XI seem to polarize in two groups according to burial orientation, those aligned southwest–northeast and those to the northwest–southeast.

With regard to body placement, Glazkovo interments are generally characterized by extended or sitting (tightly flexed) positions (Michael 1958). Nearly all Kurma XI burials conform to this pattern, with the exception of Burials 9, 14, and 18. These graves contained remains that were disarticulated to various degrees. Given that Glazkovo burials often exhibit extensive skeletal disturbance (Robertson 2006), these burials are not atypical of this cultural group. The skeletal remains of Burial 14, however, were semi-articulated, in that the limb bones were found in articulation with each other but not in anatomical position. Such body positions are rare among Glazkovo interments (Weber pers. comm. 2005), but have been documented at other mortuary sites. Burial 22 was somewhat distinct, as this individual was interred on their right side with the lower limbs slightly flexed, a position not unique to any of the Cis-Baikal cultural groups.

The most diagnostic grave inclusions in Glazkovo burials are metal objects, fishhooks of bone or stone, and white nephrite rings (Michael 1958). Again, most Kurma XI burials contained items characteristic of the Glazkovo culture in the Ol'khon microregion, as well as in the Cis-Baikal as a whole (Goriunova 2002; Konopatskii 1982; Kharinskii and Sosnovskaia 2000; Okladnikov 1955, 1978; Tiutrin and Bazaliiskii 1996; Turkin and Kharinskii 2004). Some burials however, notably Burials 17, 21, 22, 24, and 27 were more difficult to attribute to a cultural group in this regard. Burials 17, 22, and 24 were not associated with any archaeological material, while Burial 21 contained only a single blade, and Burial 27 was associated with 4 microblades. These lithic artifacts were generally similar in morphology from the Mesolithic period onward. In addition, these five burials were all found in extended supine positions common to the Kitoi, Serovo, and Glazkovo cultures (Michael 1958; Goriunova 1997, 2002; Goriunova and Khlobystin 1992; Komarova and Sher 1992; Konopatskii 1982; Kharinskii and Sosnovskaia 2000).

As the majority of burials at Kurma XI seem to be associated with the Glazkovo, the observation of red ochre is somewhat peculiar. The use of red ochre in Glazkovo interments is rare, but at Kurma XI, it occurs in 4 of 25 graves (Graves 14, 17, 22, and 24), or in 16.0% of cases. Of these, Burials 14 and 17 exhibited extensive use of ochre, with staining observed on the skeletal remains as well as the sediment matrix. Burials 22 and 24, however, exhibited only minor ochre staining in the thoracic area. The use of ochre has been commonly observed in Kitoi burials in the Angara River valley (Michael 1958) and the south coast of Lake Baikal. Interestingly, 3 of the 4 Kurma XI graves in which ochre was used (Graves 17, 22 and 24) did not contain any accompanying materials, and two (Graves 22 and 24) were oriented northwest, unlike most burials at Kurma XI.

In sum, most Kurma XI burials exhibited a number of general similarities. Although no two burials were treated identically, 18 of the 24 Kurma XI burials (Burials 1, 3, 4, 5, 6, 7-1, 7-2, 8, 9, 10, 12, 13, 15, 16, 18, 19, 25 and 26) and 2 of the 3 features without osteological remains (Graves 2 and 23) were attributable to the Glazkovo culture in the Early Bronze Age according to similarities in grave/burial orientations, body positions, or accompanying materials. Burials 14 and 17 were somewhat less easily associated with the Glazkovo, however. Burial 14 was found semi-articulated, and covered with a large quantity of red ochre, both uncommon in Glazkovo interments. The presence of a copper ring found in association with the burial, however, strongly suggests that this grave belongs to the Early Bronze Age. Burial 17, which also exhibited the effects of extensive red ochre use, contained no grave accoutrements. Its southwest orientation and extended supine body position, however, also correspond to the Glazkovo in the Little Sea region.

The remaining graves were distinguished from the other Kurma XI burials in a number of respects. First, Graves 20, 21, 22, 24, and 27 were all oriented northwest, in contrast to the remaining interments, and were located in close spatial proximity to each other. Further, Burial 22 exhibited a different burial position, while Burials 22 and 24 contained evidence of limited use of red ochre. Finally, these four graves contained almost no accompanying material. The use of ochre is a commonly observed characteristic of Kitoi burials from the Angara valley and southern coast of Lake Baikal. Such graves also contain highly variable quantities of grave accoutrements (Michael 1958; Weber 1995; Bazaliiskii 2003). As such, these four burials may belong to the Early Neolithic, although it is difficult to supply any strong evidence in this regard.

4.2 Kurma XI Radiocarbon Dating Results

To further examine the cultural associations of Kurma XI graves, I assessed the set of radiocarbon dates returned from Kurma XI burials. Of the 24 burials, human bone samples from 22 were submitted for radiocarbon dating (Table 5). Burial 8 (excavated by A.V. Kharinskii in 1994) was not sampled, nor was Burial 27, due to extremely poor preservation. All samples were processed at the Accelerator Mass Spectrometry (AMS) Facility of the IsoTrace Radiocarbon Laboratory, University of Toronto, Canada, using the Libby ^{14}C half-life of 5568 years. Radiocarbon dates were calibrated using Calib 5.0.1 with the INTCAL04 data set (Stuiver et al. 2005). All dates listed as BP are non-calibrated radiocarbon years, while those followed by BC are calibrated calendar years.

The 22 submitted human bone samples returned 21 determinations. No age determination was possible for Burial 17 due to poor preservation. According to mortuary protocols discussed above, 20 of the 24 Kurma XI burials (Burials 1, 3, 4, 5, 6, 7-1, 7-2, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 25, and 26) were attributed to the Glazkovo culture group. These identifications were confirmed in 17 cases, as these burials were dated to the Early Bronze Age between ~4400–3800 BP. The radiocarbon determination for Burial 14 confirmed its association with the Early Bronze Age. Finally, of the four northwest oriented burials (Burials 21, 22, 24, and 27), 3 were dated to the Early Neolithic (~6500–5500 BP), and as such were broadly contemporaneous with the Kitoi of the Angara valley and south Baikal coast. While it was not possible to date Burial 27, its spatial proximity to the three Early Neolithic burials, and the similarities in mortuary ritual among these four interments, strongly suggest that Grave 27 should also be considered Early Neolithic in origin.

4.3 Accuracy Assessment of Kurma XI Radiocarbon Dates

Before discussing specific patterns of use on an intra-site scale, it was necessary to assess the accuracy of the available radiocarbon dates. Weber et al. (2005) recently provided a suite of methods for determining the accuracy and precision of radiocarbon dates within a data set through selective utilization of dates produced from high collagen yield samples, comparison of multiple dates obtained from the same individual, and comparison of determinations obtained from graves that contained more than one burial. While their approach was productive in assessing the accuracy of KN XIV dates, not all aspects of their method was applicable here, as no burials at Kurma XI were dated more than once, and the cemetery contained only one multiple interment, Grave 7. As such, the examination of collagen yields and this double burial were the sole means by which it was possible to evaluate the Kurma XI radiocarbon data set using their methods.

Preliminary examination of the entire set of Kurma XI radiocarbon dates indicated that these determinations could be divided into two groups (Figure 5). The first included all dates from the Bronze Age Glazkovo burials, which were clustered around ~4000 BP. The second group contained the three Early Neolithic determinations, which ranged between ~6500–5500 BP. Weber et al.'s (2005) first step to evaluating the accuracy of radiocarbon determinations at KN XIV was to assess the temporal distribution of dates in the context of their collagen yields. In their analysis, low collagen dates (from samples with <1.0% collagen yield) were significantly more variable in their distribution around the mean, while those with higher collagen yields (>1.0%) were found generally clustered around the mean, although the continuous distribution of dates made the distinction between low and high collagen dates somewhat arbitrary.

A similar assessment of Kurma XI determinations (Figure 5) indicates that all Glazkovo dates cluster closely around the mean, regardless of collagen yield. The fact that both high and low collagen dates do not significantly deviate from the mean of suggests that all dates may have been subjected to little contamination, and as such may be reasonably accurate. Recent research has indicated that collagen yields of bone samples are imperative for evaluating the accuracy of radiocarbon dates (Taylor 1997; Weber et al. 2005) as samples with collagen yields below 1% produce increasingly anomalous determinations (Taylor 1997). While Weber et al. (2005) argue that not all high collagen determinations were accurate and not all low collagen yield dates were inaccurate, to avoid potential errors the Kurma XI radiocarbon data set was split into two groups for evaluation, those with high (>1.0%) and those with low (<1.0%) collagen yields (Figure 6) in an attempt to avoid including inaccurate or anomalous dates in the analysis. The remainder of this chapter focuses only on high collagen determinations.

The second method utilized for assessing the accuracy of radiocarbon determinations involved evaluating the degree of congruency between dates obtained from multiple burials. The only such case from Kurma XI was a double burial, Grave 7. Although samples from both burials in Grave 7 returned dates with collagen yields greater that 1.0%, the determinations were discordant despite some, albeit minor, overlap in their standard errors. Ward and Wilson's Case I T statistic, which evaluates the statistical probability that two dates originate from the same temporal event, was applied to determine whether these two dates were statistically similar

(**Ward and Wilson** 1978). In this case, the test revealed that the two dates were statistically different.

Such a difference could be explained in a number of ways. Since the sample from Burial 7-1 returned a lower collagen yield than that of Burial 7-2, the former may be inaccurate. Conversely, since both dates possessed collagen yields greater than 1.0%, both may be anomalous as a result of similar levels of contamination. On the other hand, if both dates are accurate, then these burials represent two temporally distinct events. According to this scenario, one of the burials (likely Burial 7-1) would have been incorporated later into an existing grave, which already contained a previously interred individual (Burial 7-2). Such practices have been documented in Glazkovo interments in the Little Sea region (McKenzie 2006).

To clarify this matter, it was necessary to assess the archaeological evidence from Grave 7. The burial level of Grave 7 was extensively disturbed; only the lower limbs of Burials 7-1 and 7-2 were found in anatomical position, while elements of both individuals' superior skeletons were commingled and scattered throughout the western half of the grave pit, with a number of elements missing entirely (Figure 7). If, as the radiocarbon dates suggest, Grave 7 was reopened after its original construction to inter the second individual, it seems likely that the earlier interment (in this case Burial 7-2) would exhibit more extensive skeletal disturbance than the later interment, due to the intrusion of the new burial into the grave. As both individuals were affected to a similar degree, this evidence suggests that disturbances to Grave 7 were the result of a single disturbance event. Therefore, I argue that the interment of the two individuals in Grave 7 constitutes a single chronological event, rather than two temporally discrete interments in the same grave.

As two statistically different dates have been produced from what appears to have been a single chronological event, we cannot be absolutely certain whether one or both radiocarbon dates are inaccurate. The determination from Burial 7-2 returned a reasonably high collagen yield (2.2%) while that of Burial 7-1 was only slightly above the 1.0% cutoff (1.2%). As mentioned earlier, Weber at al. (2005) argue that not all high collagen dates are necessarily accurate, while low collagen dates are not inaccurate in all cases. These two dates are statistically different, and therefore cannot be combined. Since there is no other method of identifying which date is accurate, the determination returned from Burial 7-2, with the highest collagen yield, was considered to be valid, while that of Burial 7-1 was excluded from further analysis.

4.4 Patterns of Cemetery Use

The initial examination of dates considered as accurate suggested that the cemetery was used during at least two distinct periods, first in the Early Neolithic, and again in the Early Bronze Age. Establishing a more detailed intra-site chronology for Kurma XI, however, presented a number of difficulties. First, all Bronze Age dates cluster closely around the mean of 4130 BP, and each standard errors generally overlaps those of a number of other determinations. While calibration of dates is necessary for meaningful chronological comparisons, this further complicates the situation. Weber et al. (2005:1490) encountered similar issues, stating that, "in worst-case scenarios, when the time interval between dated events is short compared to the standard deviation, and when the laboratory estimates lie on a flat section or inversion of the calibration curve, calibrated radiocarbon dates have limited use and may even produce incorrect sequences". This scenario, unfortunately, applies to Kurma XI as well. Although the mean of high collagen dates from Kurma XI (~4130 BP) is somewhat earlier than that of KN XIV (~3900 BP), most of the dates lie on a section of the calibration curve that contains a series of inversions (Figure 8). For these reasons, a reconstruction of Kurma XI's use life on a grave-by-grave basis was not possible. It was possible, however, to assess the tempo of site use through the application of Bayesian statistical techniques.

Bayesian statistical techniques were useful to identify phases of use at the KN XIV cemetery (Weber et al. 2005). These phases were composed of groups of interments that were hypothesized to have been relatively synchronous, based on grouping of statistically similar dates. Similarly, Kurma XI high collagen dates were analyzed using the BCal statistical package, in particular its calibration and outlier analysis features. While the latter is commonly used with multiple dates from a single chronological event in order to evaluate the probability that a given date may be an outlier, this feature can also be used to group a set of determinations and assess the degree to which they approximate a simple theoretical model, into which *a priori* information can be integrated.

Although there was little *a priori* knowledge with regard to Kurma XI's intra-site chronology, there is enough information to construct a model for the Bayesian analysis. First, radiocarbon dates indicate that the cemetery experienced two phases of use, one in the Early Neolithic, and a second during the Early Bronze Age. The Early Neolithic phase is represented by one high collagen date from Burial 21, dated to ~5400 BC. The second period of use is represented by 12 high collagen dates from Burials 4, 5, 6, 7-2, 10, 13, 14, 15, 16, 18, 19, and 26. This phase dates from ~3000 to ~2400 BC. According to the high collagen determinations, these phases appeared to be separated by at approximately 1500 years, and as such did not overlap or abut with each other. BCal's outlier detection protocol was applied to these 12 dates, with each determination assigned a probability of 0.1 that it was an outlier. Grave 21, as an obvious outlier according to both archaeological and radiocarbon data, was excluded. Dates that returned posterior probabilities greater than 0.1 were regarded as probable outliers, and removed. The remaining dates were resubmitted to the program until no more outliers remained. The results of these analyses are presented in Table 6.

The program's first run identified 6 outliers. These included the five oldest determinations (from Burials 7-2, 15, 16, 18, and 26) as well as the youngest determination in the set (Burial 6). The second run identified Burial 14 as a probable outlier. The final run, composed of the remaining five dates (Burials 4, 5, 10, 13, 19) identified no additional outliers. Likewise, the resubmission of the five older dates identified during the first run also resulted in no further outliers.

The results of BCal's outlier detection protocol suggested four phases of site use by the Glazkovo, in addition to the first, Early Neolithic phase. The second phase was composed of the five oldest Glazkovo graves (Graves 7, 15, 16, 18, and 26), while the third phase contained a single grave (Grave 14). Phase 4 also included five graves (Graves 4, 10, 13, 5, and 19). A single interment (Grave 6) composed the fifth and final phase.

In addition to identifying probable outliers, BCal can also calculate the highest posterior density (HPD) region at a 95% probability level between any two determinations. In other words, it can calculate the temporal duration of each use phase. The results of these calculations are presented in Table 7. The HPD for the period between the oldest grave (Grave 21) and the youngest (Grave 6) effectively represents the total duration of site use, and was calculated to be ~2800 calendar years. The estimated period elapsed between the construction of the first grave (Grave 21) and the first Glazkovo grave (Grave 7) represents an interim period of site abandonment, in which no graves were constructed at Kurma XI. The HPD for this period was calculated to be ~2470 calendar years. With regard to the Glazkovo component of use, the elapsed period between the first Glazkovo grave (Grave 7-2) and the last (Grave 6) was calculated to be ~320 calendar years. The HPDs for Phases 2 and 4 were also calculated, at ~160 and ~180 calendar years, respectively. Since the HPD region is the calculated time span between two dates, it was not possible to establish a time range for Phases 3 and 5, as these were represented by only one burial each.

4.5 Discussion

Before applying these results to the remainder of the thesis, a number of considerations must be made. First, Weber et al. (2005) determined that grave construction at KN XIV appeared to have been normally distributed through time, which could be explained in two possible ways. First, the distribution of dates may be representative of the normal use life of a site, which is characterized by infrequent use at the beginning, followed by a peak, then slow decline in frequency, and finally abandonment. Conversely, stochastic measurement errors inherent to the radiocarbon method also could have created a normal distribution from a series of dates that were produced from events that were relatively synchronous. This line of reasoning also suggests that stochastic measurement errors would widen and flatten a distribution of determinations that was inherently normal. As a result, the authors suggest that KN XIV was likely used over a shorter duration than was originally indicated by the range of dates. Kurma XI, in contrast, appears to have been characterized by a bimodal use pattern. In this case, stochastic measurement errors also may have compressed its distribution, in that each mean may have become temporally constricted, creating a wider gap between the two. This may suggest that a short period of disuse may have occurred within the Glazkovo component of site use at Kurma XI.

While I evaluate the accuracy of this bimodality in subsequent chapters, it is necessary to modify the phase classifications presented above. The Bayesian analysis identified 5 phases, 4 of which belonged to the Glazkovo period. Two of these phases (3 and 5) however, are represented by only one grave each (Burials 14 and 6, respectively). For the purposes of this analysis, one grave is not enough to allow justified comparisons among phases. Preliminary examination revealed that Phase 2 was composed entirely of graves from the northeastern half of the cemetery (with the possible exception of Grave 7, which was the subject of debate in the section above). Similarly, nearly all Phase 4 graves (with the exception of Grave 19) were found in the southwestern half of the site. While the nature of stochastic measurement errors means that these Burials 6 and 14 could belong to any of the phases, it seems more prudent to include Grave 14 with the Phase 2 graves, and add Grave 6 to Phase 4 on the basis of their spatial locations. This reduces the number of use phases during the Glazkovo component to two phases of six graves each. I therefore refer to graves from Phase 2 and 3 as Glazkovo Phase 1 graves, while Phase 4 and 5 graves are included in Glazkovo Phase 2 in the remainder of the thesis. The Early Neolithic graves are accommodated within an Early Neolithic Phase.

Chapter 5

Mortuary Variability

In this chapter, I describe and analyze variability in mortuary ritual observed at Kurma XI. First, I define the sample of burials used for this analysis. The remainder of this chapter is devoted to the examination of associations between the independent variables (spatial location of graves and the age and sex of burials) and dependant variables (such as grave architecture, body treatment, and grave inclusions). This examination forms the basis for the discussion of culturally meaningful distinctions in mortuary treatment at Kurma XI.

5.1 Independent Variables

5.1.1 Spatial Distribution

The 27 features constructed at Kurma XI were found primarily within two topographically differentiated groups or clusters. The first cluster was linear in form and composed of 19 features scattered over a distance of approximately 200 m southwest–northeast along the base of the hill between 6 and 16 m above the surface level of Lake Baikal. Within this cluster, the distance between graves was variable, ranging from 5 to 32 m. Unlike the complex arrangement of grave rows found at KN XIV (McKenzie 2006), graves in this Kurma XI cluster were not arranged in any apparent spatial patterns. Two features within this cluster did not contain any human remains. The first, Feature 11, consisted of a small round pit filled with paving stones. While no grave inclusions were recovered, a few charred faunal bone fragments were recovered. As Feature 11 was likely not a grave, it was excluded from the analysis below. Feature 2, on the other hand, exhibited grave architecture and a pit orientation that was similar to other graves found in the immediate vicinity. In addition, a single ground stone disk was recovered from the grave pit floor. Given this evidence, it seems very likely that Feature 2 contained a burial at some point in the past. The complete lack of osteological remains suggests that any individual interred in this pit would have been removed quickly, before extensive decomposition. Similarly, as only one disk was recovered, it seems plausible to assume that nearly all artifacts were also removed with the body. While this feature could have been included in this analysis, it was removed for two reasons. First, the primary focus of this analysis is to examine the observed mortuary variability according to the age and sex of burials, which act as proxies for social distinctions. As there was no individual recovered, this burial could only be treated as an unsexed adult, lending little additional data to the analysis. Second, as grave goods were likely removed from the grave with the burial, the inclusion of this feature would detract from the accurate analysis of patterns of grave inclusions. For these reasons, Features 2 and 11 were excluded from consideration for the remainder of this thesis, although both are documented in the subsequent appendix. The remaining graves within this cluster (Graves 1, 3–6, 7, 8, 9, 10, 12– 19) were attributed to the Glazkovo cultural group in the Bronze Age on the basis of observed mortuary ritual as well as radiocarbon dates in Chapter 4.

The second spatial cluster consisted of 8 features positioned on a few flat ledges or terraces found between bedrock ridges on the northeastern portion of the slope. These features (Features 20–27) were located approximately 18–32 m above the surface of the lake, and arranged in three spatial groups. The first of these was composed of Features 20–23, positioned in an east–west oriented line. Of these 4 features, 2 (Features 20 and 23) contained no human osteological remains or accompanying artifacts, while Graves 21 and 22 were attributed to the Early Neolithic. As the focus of this analysis is the Bronze Age Glazkovo, these four features were also excluded from the remainder of the thesis.

Approximately 18 m upslope, the second spatial group consisted of three graves (Graves 24–26), also arranged in an east–west oriented line. Grave 24, somewhat separated from the other two features in this cluster, was determined to be Early Neolithic in origin, and was excluded from analysis. A single grave (Grave 27) was found on a separate terrace approximately 25 m down slope on the hill's northeastern face from the nearest upper terrace cluster graves. This grave was also attributed to the Early Neolithic according to archaeological data in Chapter 4, and was also excluded from further analysis. In sum, only the 20 Bronze Age Glazkovo burials containing human remains are discussed in the remainder of this thesis, specifically Burials 1, 3– 6, 7-1, 7-2, 8–10, 12– 19, 25, and 26.

5.1.2 Demographic Variables

Sex determinations for the 20 Kurma XI Glazkovo burials were successful in 13 cases (Table 8, Table 9, Figure 10), and 4 males, 5 probable males, 2 females, and 2 probable females were identified (Ardley 2002, Stratton 2003). The sex of the remaining seven burials could not be determined. In an attempt to maintain the largest possible sample sizes for both sexes, all probable males were considered males, and all probable females were included as females. Although this practice may have introduced errors into the analysis, it was difficult to justify retaining the probable male and probable female categories, as this would have reduced the already small number of cases in each category. All tables summarizing archaeological data display the original sex identifications, with the exception those tables that summarize grave inclusions by type (Tables 20–35, 42). These tables only distinguish between males and females.

Given these qualifications, the male to female ratio at Kurma XI was 9:4, which appears markedly different from the 1:1 sex ratio assumed to characterize a human biological population. This skewing in favor of males may not be as striking as it appears, however. Females are commonly underrepresented in cemetery populations, as gracile bones of females often preserve less well than those of males (Walker 1995). In addition, females in skeletally robust populations are frequently misidentified as males in as many as 12% of cases (Weiss 1973). In her analysis of the KN XIV cemetery, Lieverse (2005) argued that despite the small number of identified females (5) within the cemetery population, the large proportion of unsexed individuals resulted in the possibility that the male to female ratio could still be statistically close to 1:1. While the small number of cases at Kurma XI prevent statistical testing, for the above reasons it seems likely that the sex ratio may be closer to 1:1 than it appears.

Age estimates for Kurma XI burials were available in 15 cases; the remaining 5 (Burials 7-1, 7-2, 9, 12, and 17) could only be described as skeletally mature (20+) (Table 8). Lieverse (2005) established a series of age categories for her analysis of KN XIV, grouping adults into three categories: 20–25 years of age (young adult), 25–35 years (middle adult), and 35–50 years (older adult). According to these categories, the Glazkovo component of Kurma XI consisted of 7 young adults (Burials 3, 6, 10, 14, 15, 16, and 18), 2 middle adults (Burials 5 and 19), and 4 older adults (Burials 4, 8, 13, and 26). Unfortunately, it was difficult to classify two Kurma XI individuals (Burials 1 and 25) in this manner, as they were assigned age ranges that spanned both the young and middle adult categories.

Given the small number of Kurma XI individuals found in these age categories, it seemed precarious to assign arbitrarily Burials 1 and 25 to either the young or middle adult category. In addition, 4 of the 7 individuals in the young adult category had age ranges that extended well into the middle adult category, creating some doubt as to which age group they should belong. In an attempt to avoid unjustified categorizations that would produce misleading results, I chose to combine the young and middle adult categories for the purposes of this thesis. This kept the number of age categories to a minimum, as the small sample size remained a concern. As a result, individuals assessed to have been 20–35 years of age were classified as *younger adults*, while those aged 35–50 years were designated *older adults*.

According to this approach (Table 10), 11 of the 20 Glazkovo burials (55.0%) were classified as *younger adults*, specifically Burials 1, 3, 5, 6, 10, 14, 15, 16, 18, 19, and 25, and four were included in the *older adult* group (Burials 4, 8, 13, and 26; 20.0%). The 5 individuals that could only be assessed as skeletally mature (Burials 7-1, 7-2, 9, 12, and 17) were classified simply as *adults* (20+). Overall, the age range of Kurma XI individuals was relatively narrow, in that only 'prime age' adults were represented, with a complete absence of subadults and senescents (50+). Conversely, at the nearby KN XIV, all age ranges were represented from infant to senescent (Lieverse 2005). This may indicate that age of the deceased may have been one of the criteria for interment at Kurma XI.

5.2 Associations between Independent Variables

Sex and age of Glazkovo burials at Kurma XI appeared to be associated to some degree (Figure 10). First, all four *older adult* individuals (100.0%) were assessed as male. Out of 9 *younger adults*, 4 were male (44.4%), and 4 were female (100.0%). The 7 unsexed burials consisted of 3 *younger adults* (42.9%) and 4 adults

(57.1%). The one remaining male was classified as a *younger adult* (1 of 9, or 11.1%).

The assessment of sex determinations demonstrated a degree of spatial polarization within the hill base cluster, the division of which appears to have been between Graves 13 and 17 (Figure 11). Males accounted for 41.7% of burials (5 of 12) in the southwestern portion of the hill base cluster. Only one female burial occurred here (1 of 12, or 8.3%), while the remaining 6 (50.0%) were of undetermined sex. Conversely, the northeastern half of the hill base cluster contained a markedly greater proportion of females, as both sexes were represented equally here (3 of 6, or 50.0% respectively). The two Glazkovo graves on the upper terrace contained one unsexed burial (Burial 25) and one male burial (Burial 26). As such, it appears that sex may have been associated to some degree with the spatial location of the grave, although not on an exclusive basis, and some other factors were likely involved.

Interestingly, age groups also appeared to spatially pattern along the same lines (Figure 12). The southwest portion of the hill base cluster was composed of *younger adults* (20–35 years), found in 66.7% (8 of 12) of graves in this spatial group as well as *older adults* (35–50 years) (3 of 12, or 25.0%). These three older adults, however, represent 75.0% of all *older adults* interred at Kurma XI. The northeastern portion of the hill base cluster was characterized by the exclusive presence of *younger adult* individuals, while the upper terrace cluster contained one *younger adult* (Burial 25) as well as the fourth *older adult* (Burial 26). These data suggest that age also may also be connected with the spatial location of graves, in that the oldest individuals were interred most consistently in the southwest half of the hill base cluster, although also on the upper terrace.

This brief exploration of the associations between independent variables has identified a few important patterns. First, although males are somewhat overrepresented at Kurma XI, the Kurma XI cemetery was certainly not exclusive with regard to sex, and the male to female ratio is likely not statistically different from the expected 1:1. Consideration of the age categories indicates that Kurma XI was a disposal area for only 'prime age' adults, whose age range means fall between

20–50 years of age. It should be noted, however, that age was likely not the only criterion for interment here, as other sites in the Little Sea region also contained 'prime age' individuals (Lieverse 2005; McKenzie 2006).

While the initial distribution of graves within the cemetery suggested two main clusters (one at the hill's base and the second on an upper terrace), examination of spatial patterning by demographic characteristics suggests that graves at the base of the hill compose two distinct clusters separated by an open area approximately 30 m wide (between Graves 13 and 17). The cluster along the southwestern half of the hill's base, which contained Graves 1, 3–10, 12, and 13, featured a large proportion of males and *older adults*. The northeastern half of the hill base cluster included Burials 14–19, and in addition to the spatial criterion, was distinguished by a relatively large proportion of females and the exclusive presence of *younger adults*. The final cluster was found on the hill's upper terrace and contained Burials 25 and 26. This apparent spatial distinction of the southwest and northeast halves of the hill base is supported by the results of Chapter 4, which suggest that graves found in the northeastern half of the cemetery were likely interred during the initial stages of activity at Kurma XI in the Bronze Age (Glazkovo Phase 1), while those in the southwest were interred later (during Glazkovo Phase 2). While I return to temporal patterns of mortuary activity at the end of this chapter, given these apparent associations, I divide graves into three spatial groups, the *southwest*, *northeast*, and *upper terrace* clusters. These are displayed in Figure 13.

5.3 Dependent Variables

In this section I examine variability in mortuary ritual according to a number of dependant variables and determine their associations with independent variables. The former includes attributes of grave architecture and construction such as the arrangement of paving stones, grave pit dimensions, grave type, and grave inclusions. Before discussing any variability in Kurma XI dependant variables, it is necessary to discuss evidence of grave disturbance.

5.3.1 Grave Disturbance

Grave disturbance is a common characteristic of Glazkovo interments (Okladnikov 1950, 1955) and Kurma XI graves were no exception. In previous analyses (Drouin 2005; Robertson 2006; Weitzel 2004) prehistoric grave disturbance events were identified as a primary cause for observed variability in grave architecture and condition of skeletal remains, although natural agents may have also affected the osteological and archaeological contents of grave pits. The interplay of cultural and natural agents is poorly understood, but it is necessary to examine grave disturbance in detail. As Robertson (2006:1) rightly points out, archaeologists frequently view disturbance as prohibitive to archaeological interpretation, when these data may be very informative regarding the burials themselves and the individuals who disturbed them. In addition, ritual or non-ritual grave disturbance may have modified the composition of mortuary evidence that was observed at Kurma XI. It is therefore necessary to clarify the effects disturbances may have had on the original mortuary context in order to understand how patterns of disturbance may relate information regarding social organization at Kurma XI.

In examinations of grave disturbance at KN XIV (Drouin 2005; Robertson 2006; Weitzel 2004), similar methods of grave construction were assumed. First, grave pits were excavated into the ground, commonly to the depth of the underlying bedrock. Stones collected from the immediate vicinity were often laid inside the pit parallel to the walls to form a stone lining. Following the interment of the deceased, the grave pit was covered with earth and stones, the latter of which may have formed a cairn over the burial. At some later point, although taphonomic comparative analyses suggest longer than two weeks (Weitzel 2004), people likely returned to the site, reopened selected cairns, and disturbed some of the burials. In some cases this disruption may have been combined with removal of osteological materials, as well as the extraction or deposition of archaeological materials. Robertson (2006) argues that these disturbances were precipitated by ritual rather than economic or political motivations.

Archaeological evidence of disturbance to Glazkovo graves at KN XIV was apparent along two main axes: modification of the grave architecture and displacement of skeletal remains (Robertson 2006). The former were evidenced by ring-shaped formations of paving stones (Figure 14) on the surface around the grave pit that were interpreted as the remains of cairns disassembled to access the burial. Conversely, grave pits covered with compact stone arrangements (Figure 15) were thought to represent intact graves not subjected to disruption by humans (Drouin 2005; Robertson 2006). At the burial level, disturbed graves were often characterized by additional disruptions to the skeleton. The upper bodies were most commonly affected, featuring minor to marked disarticulation, scattering, or in many cases the absence of elements (Robertson 2006). These disruptions were attributed to human activity, as natural agents were argued to have been inconsequential in extensively modifying the grave architecture or burial treatment in such a patterned way (Drouin 2005:18–27).

To further clarify aspects of grave construction at KN XIV, Dlussky et al. (2006) conducted analyses of sediment from undisturbed graves and compared them with those of undisturbed sediment adjacent to each feature. Their results suggest that following interment of the body, undisturbed graves were sealed by arranging slabs over the burial and covering them with sediment. The source of this sediment appears to have been the pit itself, as it was similar in composition and ratio of gravel to those sediments outside of the graves. Aeolian deposition was also found to have contributed to the grave pit fill to some degree, as a portion of fines recovered from the pits was similar to sediments samples of confirmed aeolian origin from other locales (Dlussky et al. 2006). While the authors concluded that undisturbed grave pits were commonly refilled with sediment by a combination of human and natural agents, there was substantial intra- and inter-grave variability in the composition of sediment fill.

At Kurma XI, graves were quite similar to those at KN XIV in a number of respects. All Kurma XI burials were laid on the floor of grave pits excavated generally to the bedrock level. These pits were identified on the surface by the presence of large quantities of paving stones found either directly over the grave pit, or scattered in a large ring around the pit margin. In general, there were few stones lining the floor or walls of the pit, but a number of grave pits contained small quantities of stones in variable locations.

Despite these general similarities, there were also a number of differences in grave architecture between the two sites. First, the type of stones available at each site was different. At KN XIV, most stones were thin and slab-like (Dlussky et al. 2006), which arguably were more suited to lining a grave pit or creating open spaces within the grave itself. Conversely, stones used at Kurma XI were generally irregularly shaped angular cobbles whose lengths, widths, and thicknesses were more uniform. As might be expected, these cobble-like stones were likely less useful for lining grave pits and creating open spaces over the burial.

As recent work has argued that sediment should not be excluded from consideration in the analyses of mortuary sites (Dlussky et al. 2006), data characterizing sediment composition at the Kurma XI site also bear consideration. While detailed analyses have not yet been undertaken, some qualitative data were available. Field documentation indicates that sediment throughout the site was generally medium to dark brown loamy sand with large quantities of gravel inclusions. There was some degree of spatial variability with regard to sediment composition, as the northeast and upper terrace portions of the site contained more gravel as well as frequent inclusions of degraded bedrock. In general, however, sediment found at Kurma XI was very similar to that found within KN XIV grave pits by Dlussky et al. (2006).

Field notes also indicate that all Kurma XI grave pits were filled with fine, dark, well-sorted sediment, in sharp contrast to that surrounding the grave pits. These observations have a number of important implications for understanding the nature of grave construction and disruption at Kurma XI. Hypothetically, if pits were refilled with sediment following the interment of a burial, it would have been virtually impossible to do so without reincorporating the gravel and degraded bedrock that characterize the site as a whole. As such, the general absence of large proportions of gravel in Kurma XI grave pits suggests that Kurma XI graves may not have been backfilled following the deposition of the body. The remains found in Grave 26 lend support to this notion. In this grave, an articulated sacrum and right os coxa, as well as the position of the tibiae and fibulae strongly suggest that this individual was interred in a sitting position. If the grave pit was refilled immediately following interment, it stands to reason that during excavation the cranium would have been encountered first, followed by the cervical vertebrae, clavicles, scapulae, superior ribs, and so forth. Although many elements of the superior skeleton were not recovered from this interment, the remains of this individual were found in a disarticulated pile on the grave pit floor, with bones of the superior skeleton still present located on top of lower body elements (Figure 16). This evidence suggests that the skeleton likely collapsed after decomposition of the soft tissue. It is difficult to imagine how this could have occurred if sediment had surrounded the remains. While we cannot rule out the possibility that this burial may have been a secondary interment of a semi-articulated bundle, the position of the lower limb bones argues for an articulated sitting interment.

The fine texture and low gravel content of sediment found in Kurma XI grave pits suggests that they were filled by aeolian means, perhaps with very limited contributions by alluvial and colluvial forces. In this regard, Kozhov (1972, cited in McKenzie 2006) notes that the Little Sea region experiences extremely strong winds due to the topography of the surrounding landscape, commonly reaching speeds of 15–40 m/s (Baikal Web World 2006). As such, these winds likely transport large quantities of fine sediment that would be trapped in depressions such as excavated grave pits. Vorob'eva et al. (1992) have reported extensive aeolian sedimentation at a number of Little Sea sites, while Dlussky et al. (2006) also identified the presence of aeolian-deposited fines in KN XIV samples. According to these data, it seems very plausible that aeolian forces were largely responsible for the filling of Kurma XI grave pits.

If the source of the grave matrices at Kurma XI were primarily aeolian, grave pits would need to be left open for a considerable period. To determine the feasibility of this scenario, it is necessary to examine aspects of grave architecture. At the surface level, Kurma XI graves were identified by the presence of scattered paving stones in a few basic formations. The first, and most common type of surface arrangement was ring-shaped, with the center generally devoid of cobbles. These arrangements were identified in previous analyses as remains of disassembled stone cairns that initially covered the burial (Drouin 2005; Robertson 2006). The second type consisted of graves marked by compact agglomerations of stones positioned over the grave pit. Similar examples of the former type at KN XIV have been interpreted as disturbed graves, while the latter form indicated no disturbances.

At KN XIV in cases where stones were found positioned around the grave pit, it was argued that following the disassembly of the cairn and disruption of skeletal remains, the grave was abandoned and left exposed (Drouin 2005; Robertson 2006; Weitzel 2004). Such a scenario could have occurred in similar graves at Kurma XI, as graves left exposed would over time fill with aeolian and colluvial sediment. The second type of stone arrangement found at Kurma XI, in which stones were found positioned in and over the grave pit were more difficult to explain. An examination of photographic documentation as well as plans and profiles indicates that very few stones in such graves were actually in contact with the burial, and that sediment layers of variable thicknesses commonly separated the burial from the stones above. The fact that stones were found covering the pit at the surface, however, seems to suggest that these pits were partially or completely filled with sediment *before* the surface pavings were placed over the grave. Interestingly, the opposite seems to have been the case in KN XIV interments that were classified as undisturbed (Dlussky et al. 2006).

To pursue this point further, prior analyses viewed graves that were completely covered by stones as representative of cairns that were not disassembled, and, in turn, not disturbed. Robertson (2006) evaluated the association between architectural disruption and skeletal disarticulation in KN XIV graves, and confirmed that intact stone architecture was most commonly associated with articulated and complete burials, while most graves with disrupted stone structures contained skeletal remains that were disarticulated or incomplete. Grave architecture did not always relate to skeletal disturbance in predictable ways, however, as a large number of cases were inconclusive. As such, a direct correlation between disturbance of grave architecture and skeletal disruption at KN XIV was difficult to establish. Similarly, Kurma XI grave pits with partial or complete coverage contained burials whose condition ranged from completely articulated (Burials 10, 13, 15, and 16) to those with some disarticulated and/or missing elements (Burials 4, 7, 12, 14, and 17), to those whose remains were commingled (Burials 9, 18, 19). This seems to support the notion that grave architecture and skeletal disturbance are not associated with each other in a direct fashion. The presence of fine sediment in Kurma XI graves that were covered by stones at the surface level suggests that, like the disturbed graves, the former were also exposed at some point in the past.

Given the above discussion, the archaeological data suggest that it may be more profitable to view the process of grave construction and disruption, at least at Kurma XI, from a slightly different perspective. I suggest that all graves at Kurma XI were constructed with the explicit purpose that they remain exposed for some time. According to this view, grave pits would have been excavated and bodies subsequently interred. The stones found at the surface level may have been used to cover the burial in its initial stages of decomposition to protect it from scavenging animals. Following the decay of soft tissues, ancient peoples would have reopened the graves by removing the cairn stones and subsequently placing them in a ring arrangement around the grave pit margin. It seems plausible to suggest that the arrangement of paving stones in a ring was purposeful, perhaps with symbolic value. Following the removal of stones, I suggest that all graves remained exposed, although for variable periods of time. Some graves, it seems, were later sealed, while others remained open and were eventually filled by natural agents (aeolian and colluvial deposition). This seems to indicate that some burials were continually revisited in a fashion characterized by direct interactions, while sealed burials may have been subject to less direct contact with the living. These revisitations, especially the direct interaction made possible by open graves, would be suggestive that ancestors played an important role in the everyday life of past peoples, as argued by McKenzie (2006).

As a reflection of this perspective, I adopt new terms to characterize these two types of graves at Kurma XI. Hereafter, I refer to graves with compact surface paving arrangements over the grave pit as *sealed* graves, while those with few or no stones covering the grave are characterized as *exposed* graves. I discuss the disruption of skeletal remains separately, following an examination of other burial level features.

5.3.2 Grave Architecture

According to the above argument, classifying graves as *exposed* or *sealed* is primarily contingent on the arrangement of the surface paving stones. On the surface, Kurma XI graves exhibited a few patterns of stone formation (Table 11). The first and most common arrangement was ring-shaped, characterizing 68.4% (13 of 19) of graves at Kurma XI. These *exposed* graves, with few or no stones covering the pit, include Graves 1, 3–6, 8, 9, 12, 13, 15, 17, 18, 25, and 26. The second type of surface paving arrangement observed at Kurma XI was characterized by generally compact agglomerations of stones with small or no empty areas (5 of 19, or 26.3%). These stone clusters were usually oval in shape, and were positioned directly over the grave pit. Graves marked by such paving formations are considered to be *sealed*, and include Burials 7-1, 7-2, 10, 16, and 19.

Two graves had surface arrangements that were somewhat irregular in form (2 of 19, or 10.5%). The first (Grave 14) featured a small ring of paving stones in the eastern portion of the excavation trench, while the western half contained a large number of randomly scattered stones. While this feature did contain a paving stone ring, it was dissimilar from other features with surface rings as the grave pit was not spatially associated with the ring's center, but instead found in the northwestern portion of the trench. Additional excavation revealed that the grave pit had been covered with a compact cluster of paving stones slightly below the modern surface. The second grave (Grave 17) with an atypical stone arrangement exhibited two loose clusters on the surface (see Appendix A for more complete descriptions of these features). Again, while the surface level of Grave 17 could not be classified as a ring shape, in this case the grave pit mouth was not covered by paving stones, even below the modern surface. As such, Graves 14 and 17 were classified as *sealed* and *exposed*, respectively. In sum, 26.3% (5 of 19) of Glazkovo graves at Kurma XI (Graves 7, 10, 14, 16, and 19) were classified as *sealed*, while 73.6% (14 of 19) were considered to be *exposed*, specifically Graves 1, 3, 4, 5, 6, 8, 9, 12, 13, 15, 17, 18, 25, and 26.

The spatial distribution of *exposed* and *sealed* graves within the cemetery closely followed the spatial patterning observed thus far (Figure 17). In the southwest cluster, nearly all graves (9 of 11, or 81.8%) were classified as *exposed*. The remaining two graves (Graves 7 and 10) were *sealed*. The northeast cluster was less homogeneous, as half of the burials in this cluster were *sealed* (3 of 6, or 50.0%), while the other half were *exposed*. The upper terrace only contained two Glazkovo graves, both of which were classified as *exposed*. This pattern may suggest that southwest and upper terrace cluster burials were the focus of more direct interactions between the living and dead, which may imply a greater degree of social importance in connection with these individuals. I return to this aspect of mortuary behavior later in this chapter.

The assessment of age and sex in the context of *exposed* and *sealed* grave types also suggested some interesting patterning (Table 12). Males were found in *exposed* graves in 77.8% (7 of 9) cases, which composed in 50.0% (7 of 14) of all *exposed* graves. The remaining two males (2 of 9, or 22.2%) were found in *sealed* graves. Females, on the other hand, were interred in *exposed* and *sealed* graves in equal proportions (2 of 4, or 50.0%). Five of 7 (71.4%) unsexed individuals were found in *exposed* graves, while only 2 (2 of 7, or 28.6%) were interred in *sealed* graves. *Younger adult* individuals were more frequently buried in *exposed* graves (7 of 11, or 63.6%), as only 4 of 11 (36.4%) *younger adult* burials were found in *sealed* graves. All four *older adult* individuals, however, were found in *exposed* graves. A*dult* individuals were present in similar quantities in both *exposed* graves (3 of 5, or 60.0%) and *sealed* graves (2 of 5, or 40.0%). As such, it seems apparent that direct revisitation through *exposed* interments may have been most commonly associated with males, particularly those of the *older adult* age category.

Grave Pits

Glazkovo burials at Kurma XI were interred in excavated pits of relatively uniform size, dependent on body position (Table 13). Overall, the average length, width, and depth of Glazkovo grave pits housing extended burials were 2.00 m, 0.73 m, and 0.60 m, respectively. Among these graves, depth was the most variable dimension; some were as shallow as 0.40 m from the ancient surface, while one grave reached a maximum depth of 1.30 m. The average pit depth, however, was approximately 0.60 m. A few graves were circular in shape, and averaged 0.90 long by 0.65 wide by 0.62 m deep. As the size of these pits was likely due to burial position of the interments (Burials 19, 25, and 26), they are excluded from the immediate discussion, and instead addressed during the evaluation of body position. In addition, Grave 7 was not included in summary tables of grave dimensions, as it contained two burials side by side, and is not comparable to the other single burial pits. It was also necessary to remove Grave 15 from these calculations, as its depth was markedly greater than any other Kurma XI grave.

Southwest cluster grave pits were somewhat larger than those of the northeast cluster in all dimensions. The character of sediment throughout the site may partially explain this pattern. As discussed earlier, the sediment found in the northeast sector of Kurma XI included much gravel and degraded bedrock. Given the heterogeneity this sediment, it would likely have been more difficult to excavate this material, resulting in smaller grave pits. Sex of the burial may also have been a factor contributing to grave pit size. The average lengths of male and female grave pits were relatively similar, although the grave pits of males were somewhat wider and deeper on average. The average grave pit length and width of unsexed burials were quite similar to those of males. In terms of overall volume however, female graves were markedly smaller, likely due to smaller female body size. Since the majority of females were found in the northeast cluster, the sex composition of this sector may also explain the smaller grave pits found there. Interestingly, grave pit dimensions also varied among age category. On average, *younger adult* graves featured smaller grave pits in all dimensions, particularly width. *Older adults* were interred in the largest grave pits, while the dimensions of *adult* grave pits seemed to fall between the other two categories. This pattern could be explained in a few ways. First, most *older adult* individuals were interred in the southwest cluster. This sector of the site featured more homogeneous sediment that would have facilitated easier excavation by Glazkovo peoples. Secondly, I have argued that *exposed* graves were constructed with the express purpose that they remain open for the purpose of direct revisitation by the living. As all older adults were interred in exposed graves, these graves may have been made larger to more easily accommodate post-interment cultural activities.

Overall, however, the largest grave pits were associated with *older adult males* and southwest cluster *exposed* graves.

5.4 Burial Level Attributes

5.4.1 Burial Orientation

With regard to burial orientation, all Glazkovo extended interments were oriented southwest, with only minor variations (Table 3). As discussed in Chapter 4, burial orientation was most indicative of cultural affiliation, and therefore did not associate with the independent variables.

5.4.2 Body Treatment

To characterize the various protocols for treatment of Kurma XI burials, I distinguished interments according to four variables: position of the body, orientation of the burial, condition of skeletal remains, and use of red ochre. Researchers have commonly used these variables to distinguish burial treatments, both in the Cis-Baikal and elsewhere. Evidence of fire was not observed at Kurma XI, although it was apparent at other Little Sea cemeteries, and was very common at KN XIV (McKenzie 2006).

Glazkovo interments at Kurma XI were found in one of three body positions (Table 14). The most common was extended and supine, which characterized 70.0% (14 of 20) of burials, specifically Burials 1, 3–6, 7-1, 7-2, 8, 10, 12, 13, 15, 16, and 17. In these graves, the arms of individuals were positioned either at the side of the body, or with one or both hands resting on the pelvic region. Three Kurma XI Glazkovo burials (Burials 19, 25, and 26) were tightly flexed in circular grave pits (3 of 20, or 15.0%). Although the right os coxa and sacrum of Burial 26 were articulated, nearly all of the elements of these burials were disarticulated, and it was therefore difficult to determine the original body position. The small size and circular shape of these pits, however, suggests that they were likely interred in either tightly flexed positions or bundles. The remaining three burials (Burials 9, 14, and 18; 3 of 20, or 15.0%) were characterized by skeletal elements in various states of disarticulation, making the original burial positions difficult to determine. These burials were interred in oval pits characteristic of extended burials at Kurma XI and other Glazkovo Little Sea region sites. As such, it seems likely that these burials may have been originally interred in extended supine positions, and were disarticulated as a result of post-interment agents of natural or cultural origin.

The spatial distribution of body positions also distinguished the southwest, northeast, and upper terrace clusters (Figure 18). The southwest cluster contained almost exclusively extended supine interments (11 of 12, or 91.7%); only Burial 9 was inconclusive due to the paucity and disarticulation of recovered skeletal remains. The northeast cluster was more variable, containing 3 extended supine (3 of 6, or 50.0%), one flexed (1of 6, or 16.7%) and one inconclusive (1 of 6, 16.7%) burial. The upper terrace cluster was composed of two flexed burials. The spatial distribution of these body positions is highly congruent with the established spatial patterns, and lends increasing support to the idea that the spatial clusters were inherently different. The emerging pattern seems to be that the southwest cluster was more homogeneous with regard to aspects of mortuary ritual, while the burials in the northeast were more varied in their treatments.

Males were more commonly interred in extended supine positions (7 of 9, or 77.7%), but only males were found tightly flexed (with the exception of one flexed burial of undetermined sex) (Table 14). Females were found in extended supine positions (2 of 4, or 50.0%), but also in positions assessed as inconclusive (2 of 4, or 50.0%). Unsexed burials were also most commonly found extended supine (5 of 7, or 71.4%), although one was flexed (1 of 5, or 20.0%) and one inconclusive (1 of 5, or 20.0%). Body position did not appear to be pattered by age of the deceased in any observable way. While the largest portions of each age group were composed of extended supine burials, this body position was by far the most common at the site, and as such the proportions of body position types within age categories did not differ significantly from those of the cemetery as a whole.

Kurma XI burials were also analyzed with regard to the condition of the skeletal remains. Previous analyses at KN XIV assessed skeletal condition by focusing on completeness, articulation, and fragmentation of skeletal remains (Lieverse 1999; Weitzel 2004), and were primarily concerned with describing the effects of taphonomic processes on human bones recovered from this site. I chose to characterize skeletal condition exhibited by Kurma XI burials according to general degrees of articulation and completeness. While the classification of burials into the categories described below was somewhat subjective, the categories attempt only to describe the general condition of skeletal remains, and are not meant to replace a comprehensive examination of human taphonomy at Kurma XI. Six categories were developed to classify skeletal condition of Kurma XI burials. Burials were classified by their articulation (articulated, partially articulated, and disarticulated) as well as their completeness (complete, partially complete). The combination of these variables resulted in six categories, *articulated complete, articulated partially complete, partially articulated complete, partially articulated partially complete, disarticulated complete,* and *disarticulated partially complete.*

The 20 Glazkovo burials at Kurma XI were extremely variable with regard to skeletal condition, although the approach used here does not fully reflect it (Table 15). *Articulated complete* individuals were observed in 6 of 20 burials (30.0%), specifically Burials 1, 8, 10, 13, 15, and 16. Three of 20 (15.0%) were classified as *articulated partially complete*, including Burials 4, 12 and 17. The completeness of these interments varied; Burial 17 was missing only the cranium and mandible, while large portions of the upper body, including the crania and mandibles, were absent from Burials 4 and 12. Only one burial (Burial 14) was classified as *partially articulated complete* (1 of 20, or 5.0%). In this case, the elements of the lower limbs were articulated, as were the upper and lower portions of the arms. The axial skeleton was disarticulated and scattered within the pit, while the lower limbs appeared to be stacked over top of these elements. Five *partially articulated partially complete* burials (5 of 20, 25.0%) were found at Kurma XI, including Burials 3, 5, 6, 7-1, and 7-2. These interments were characterized by the presence and articulation of most elements of the lower body, while many elements of the superior skeleton were absent; those present were found disarticulated and generally scattered throughout the western half of the grave pit. The *disarticulated complete* category was represented by only one interment (1 of 20, or 5.0%), Burial 18. In this case nearly all elements were recovered, but they were scattered throughout the grave pit with almost no elements in articulation. Finally, 4 burials (4 of 20, or 20.0%) were classified as *disarticulated partially complete* (Burials 9, 19, 25, and 26). Three of these (Burials 19, 25, and 26) were found in circular grave pits, and were interred either tightly flexed or in bundles. These remains were disarticulated, substantial potions of the superior skeleton were also missing from Burials 25 and 26, while Burial 19 was missing a large number of axial skeleton components. Burial 9 was interred in an oval pit, but was only represented by disarticulated lower limb elements.

Skeletal condition did not appear to be patterned spatially (Figure 19), as the southwest and northeast clusters contained burials with various degrees of skeletal articulation and completeness. Both upper terrace cluster interments, however, were classified as *disarticulated partially complete*. In addition, the northeastern-most grave in the northeast cluster, Grave 19, also contained a *disarticulated partially complete* interment. This pattern of skeletal condition is likely associated with body position as well as spatial location, as these three graves contained tightly flexed interments.

With regard to sex determinations (Table 16), the remains of males were most commonly *articulated and complete* (5 of 9 cases, or 55.6%). Two males were categorized as *articulated partially complete* (2 of 9, or 22.2%), while the remaining two (2 of 9, or 22.2%) were *disarticulated partially complete*. Females, on the other hand, were found various states such as *articulated and complete* (1 of 4, or 25.0%), *partially articulated complete* (1 of 4, or 25.0%), *partially articulated partially complete*, (1 of 4, or 25.0%), and *disarticulated complete* (1 of 4, or 25.0%). Unsexed burials were found *articulated partially complete* in one case (1 of 7, or 14.3%), *partially articulated partially complete* in 4 cases (4 of 7, or 57.1%), and *disarticulated partially complete* in 2 instances (2 of 7, or 28.6%). Given these data, the strongest pattern seems to be that males were more commonly found in *articulated and complete* conditions, while the remains of females were more variable with regard to both articulation and completeness. Unsexed burials were most commonly partially complete, which likely inhibited sex determinations for these individuals.

The skeletal condition of *younger adults* was rather variable (Table 16) as 4 *younger adults* (4 of 11, or 36.4%) were found *articulated complete*, one *partially articulated complete* (9.1%), three *partially articulated partially complete* (27.3%), one *disarticulated partially complete* (9.1%), and two *disarticulated partially complete* (18.2%). The *older adult* remains were recovered in various states as well, including two *articulated complete* (2 of 4, or 50.0%), one *articulated partially complete* (1 of 4, or 25.0%), and one *disarticulated partially complete* (1 of 4, or 50.0%) burial. Two *adults* were categorized as *articulated partially complete* (2 of 5, or 40.0%), two as *partially articulated partially complete* (40.0%), and one as *disarticulated partially complete* (20.0%). As such, is seems that skeletal condition was not strongly associated with any of the age categories, although all *adult* individuals were only partially complete, and *older adults* were more commonly fully articulated or fully disarticulated.

In sum, articulated skeletons that were either fully or partially complete most commonly characterized male and *older adult* individuals. Females and *younger adults*, on the other hand, were more varied regarding skeletal condition, while unsexed burials and *adults* were commonly incomplete, which likely inhibited sex and age determinations. Spatial location of graves did not seem to pattern skeletal condition, with the exception of the three burials in circular grave pits (Burials 19, 25, and 26), which were all found along the northeastern border of the site.

At this juncture, the examination of skeletal condition in the context of grave types provides some supporting evidence for viewing graves as either *exposed* or *sealed*. First, although the skeletal remains in *exposed* burials (previously associated with grave disturbance) were found in various conditions, 4 of 14 *exposed* (28.6%) burials were *articulated complete*. Conversely, *sealed* graves (thought to be undisturbed in previous analyses) also contained burials in various conditions, only two of which of (2 of 6, or 33.3%) were *articulated complete*. The remaining *sealed* burials were *partially articulated complete* (1 of 6, or 16.7%), *partially articulated partially complete* (2 of 6, or 33.3%), and *disarticulated partially complete* (1 of 6, or 16.7%). In sum, both types of graves contained burials in various states of articulation and completeness.

These data seem to support the hypothesis that graves were constructed with the intention that they remain open, and that some were later sealed. First, it seems that nearly all burials interred in *exposed* graves were subjected to skeletal disturbance to varying degrees. This association is unsurprising. If grave pits were left open and burials exposed, continual human visitation could have resulted in the repositioning and/or removal of skeletal elements. Additionally, the long-term exposure of these burials could certainly have resulted in more opportunity for natural taphonomic agents to disturb burials. The most likely culprits in these cases may have been fauna such as small rodents and birds that could freely enter the pit and redistribute or remove skeletal remains. The presence of articulated and complete burials in *exposed* graves, however, argues against willful destruction of graves built for the purpose of remaining closed, as even careful and deliberate disruptions would likely have disturbed the skeletal remains. Further support for this scenario, although indirect, is supplied by evidence from KN XIV, where increased pit depth was correlated with greater degrees of articulation, as well as more complete skeletons (Lieverse 1999). Deeper pits would have been more difficult for animals to enter, and therefore would have reduced the amount of faunal disturbances to burials. Indeed, at Kurma XI the deepest grave pits, those of *exposed* Graves 13 and 15, contained individuals that exhibited little or no skeletal disturbance, while the shallowest two *exposed* graves (Burials 3 and 12) did exhibit extensive disruptions of skeletal material.

Similarly, prior analyses have suggested that *sealed* burials represented undisturbed graves. At Kurma XI, however, *sealed* burials contained individuals that were both disarticulated and partially complete. According to these earlier analyses, this pattern was difficult to explain. The perspective advocated in this thesis, however, is that all graves were left open following decomposition of the soft body tissues, and only some were subsequently sealed. As such, it seems logical that some of these interments would have been subjected to similar disruptions to those discussed above.

The examination of skull condition at Kurma XI revealed that 50.0% of individuals (10 of 20) were missing their crania and mandibles, specifically Burials 3, 4, 5, 7-1, 7-2, 9, 12, 17, 25, and 26. Of these 10, however, only a few provided clues to the process of skull removal at Kurma XI. In Grave 17, the grave pit was large enough to accommodate the entire body. Nearly all vertebrae, as well as 3 teeth, were recovered from the grave, indicating the skull was likely removed post-interment. Of the remaining nine burials missing skulls, 5 (Burials 3, 5, 7-1, 7-2, and 12) were associated with cranial fragments and/or teeth. The presence of these elements also suggests post-interment removal of the skull. No cranial, mandibular, or dental remains were recovered from graves of the remaining 4 burials missing skulls (Burial 4, 9, 25, and 26), and as such it is unclear as to whether the skulls of these individuals were removed before or after inhumation.

The absence of skulls from burials of both the Neolithic and the Early Bronze Age has been interpreted as a significant aspect of mortuary ritual by prior researchers (Bazaliiskii 2003). At Kurma XI, 7 of the 10 burials missing skulls (70.0%) occurred in the southwest cluster, representing 58.3% of burials in this sector. The northeast cluster burials were missing skulls in only 1 of 6 (16.7%) cases, while the skulls were absent in both upper terrace interments. Sex determinations were not possible for 7 of these 10 burials missing skulls. The remaining 3 (Burials 4, 17, and 26), however, were all determined to be males. Similarly, while 5 of these 10 burials could only be assessed as skeletally mature, the remaining 5 were composed of 2 *older adults* (20.0%) and 3 *younger adults* (30.0%). In sum, skull absence seems to be associated with the southwest and upper terrace clusters as well as male burials, however 4 of 5 (80.0%) males in the southwest cluster retained their skulls. It should also be noted that only Burial 17 was represented by all skeletal elements with the exception of the skull, whereas the remaining 9 burials missing skulls were characterized by the absence of varying portions of the superior skeleton as well. In general, however, it seems that the removal of skulls and mandibles was, at least in most cases, a post-interment phenomenon that could be linked with grave revisitation following burial.

The use of ochre in burials has been observed in both Early Neolithic as well as the Late Neolithic and Early Bronze Age cemeteries of the Cis-Baikal. The extensive use of red ochre to cover burials was very common in the Early Neolithic, and has been considered one of the diagnostic traits that identify Kitoi culture burials in the Angara River valley (Michael 1958; Bazaliiskii 2003). In such burials the use of ochre is usually very copious, in that most skeletal elements and the surrounding matrix are stained red. In Glazkovo burials, however, the use of ochre is rare. At KN XIV, only a few minor instances of ochre staining were observed in skeletal elements and surrounding sediment. These observed stains were likely not the result of extensive red ochre usage by the Glazkovo at KN XIV (Weber and Weitzel 2006).

At Kurma XI, extensive red staining of skeletal remains and sediment matrix was observed in two graves. Burials 14 and 17 in the northeast cluster were extensively stained. Since there were only two burials in which ochre was used, it was difficult to identify any patterns. As these two graves were both located in the northeast cluster, it seems that the use of red ochre may be associated with spatial location, although the small number of cases makes this connection weak.

5.5 Grave Inclusions

In this section, I examine the distribution of grave goods recovered from Glazkovo graves at Kurma XI. These graves produced over 600 items, most of which were similar to those from broadly synchronous burials in the Cis-Baikal region, although a few were either rare or unique (Table 17). For analytical purposes, Kurma XI grave inclusions were identified according to type, and classified as either ornaments, implements, raw material, or unmodified faunal remains. I discuss each type of artifact within the framework of these categories, and evaluate their associations with the independent variables.

Not all items recovered from Kurma XI graves were included in this portion of the analysis. In the discussion of grave disturbance, I argued that all Kurma XI burials had been exposed in order to facilitate direct interaction between the living and the dead following interment. Some of these graves were subsequently sealed, while others remained exposed. This practice has important implications for the following analysis. As a number of revisitations may have occurred over time, it is possible that objects may have been continuously deposited or removed from graves. While I cannot account for the degree to which these events may have changed the composition of the original burial context, it seems likely that artifacts found in direct spatial association with the burial were added at the time of interment or shortly thereafter. As such, these objects are likely to be the most representative of the individual's social status and identity within the community, while grave goods deposited later have a greater probability of representing a different set of relationships, which may or may not be related the individual's status in life. Therefore, only items that were found in direct spatial association with the burial were included, while the few artifacts found at or near the surface, or outside the grave pit, were excluded from analysis.

5.5.1 Implements

For this analysis, implements were defined as objects for which a utilitarian function could be determined. Implements were the most common artifacts recovered from Kurma XI, and were manufactured from both inorganic (stone) and organic (bone and antler) materials.

Ground Stone Implements

Nephrite Axes

Axes and adzes are common grave inclusions throughout the Cis-Baikal during the Middle Holocene. Axes exhibit generally symmetrical edges when viewed in longitudinal cross-section, while those of adzes are asymmetrical. Axes and adzes from Kurma XI varied in size, although their form was relatively consistent. Given the similarities between these two items, I refer to both as 'axes'. All Kurma XI axes were manufactured from deep green nephrite, the only sources of which are found approximately 300 km to the southwest of the Lake Baikal in the Eastern Sayan mountain range (Sekerin and Sekerina 2000). These sources can be accessed by way of the Kitoi, Irkut, Belaia, and Oka river valleys. The presence of this material in the Little Sea region suggests that some degree of trade or exchange may have occurred along these rivers during the Bronze Age. Past researchers (Okladnikov 1950, 1955) have interpreted axes as high status markers, and the distance at which these resources were located, combined with the time investment required to manufacture an axe, likely indicates that these artifacts possessed high material value and can be viewed as prestige items.

Six axes were found in association with 4 Kurma XI Glazkovo burials (Burials 3, 4, 13, and 26) (Table 18); Graves 4 and 13 each contained two axes. These artifacts were confined mostly to the southwest cluster, although one was found associated with a tightly flexed upper terrace burial (Burial 26). Axes were most often interred with males, although only 22.2% of male graves contained them. A single axe was associated with an unsexed individual (Burial 3), but none were found in direct physical association with female burials.

Axes were most commonly found with *older adults*, as these artifacts were included with 50.0% (2 of 4) of individuals in this age group. Only one *younger adult* interment (1 of 10, or 10.0%) contained an axe. It is worth mentioning that all axes were recovered from *exposed* graves, specifically those of *older adult* males in the southwest and upper terrace clusters.

Abraders/hones

Only two abraders, manufactured from slate, were recovered from Glazkovo burials at Kurma XI. Both were associated with Burial 13 in the southwest spatial cluster. This individual was assessed as an *older adult* male interred in an *exposed* grave.

Fishhook shanks

Fishhooks are known in the Cis-Baikal throughout the Middle Holocene, but were more commonly found in greater quantities accompanying Early Neolithic, rather than Early Bronze Age burials (Michael 1958; Bazaliiskii 2003). This section only discusses fishhooks manufactured from stone. Those of bone and antler are discussed below. Only one ground stone fishhook was recovered from Kurma XI, associated with Burial 12. This artifact was manufactured from aragonite and exhibited a number of punctuations on the dorsal surface in a pattern that has been interpreted as an anthropomorphic face (Goriunova and Weber 2003a). This item was found in a southwest cluster *exposed* grave containing an unsexed *adult*.

Flaked Stone Implements

Arrowheads

Flaked stone arrowheads were among the most common items recovered from Kurma XI Glazkovo burials. Overall, 63 arrowheads of a number of different forms were associated with 6 burials (Table 20), representing 30.0% of all interments at Kurma XI (Burials 1, 4, 7-2, 8, 9, 10). All were located within the southwest cluster, where they were exclusively associated with males (4 of 9, or 44.4%) and unsexed individuals (2 of 7, or 28.7%). No arrowheads were associated with females. Arrowheads were associated with 20.0% of *younger adults* (2 of 10), and 50.0% (2 of 4) of *older adults*, although *older adult* graves contained a total of 25, as opposed to 13 found with *younger adults*. Two *adults* (2 of 6, 33.3%) were also associated with these objects. Finally, arrowheads were found in relatively equal proportions between *exposed* and *sealed* burials (35.7% and 33.3%, respectively). In sum, it seems that arrowheads are associated males, particularly *older adult* males, in the southwest spatial cluster.

Bifaces

Six lithic bifaces were recovered from six Kurma XI burials (6 of 20, 30.0%), specifically Burials 1, 4, 9, 10, 13, and 16 (Table 21). These artifacts were primarily confined to the southwest cluster, as 5 of the 6 (83.3%) were found in this sector (representing 45.5% of southwest cluster graves). The remaining biface was located in northeast cluster Burial 16. These objects were primarily associated with males (4 of 9, 44.4%), as opposed to 25.0% of females (1 of 4) and 14.3% of unsexed interments (1 of 7). *Younger adult* burials were associated with bifaces in 30.0% of cases (3 of 10), *older adults* in 50.0% (2 of 4), and *adults* in 16.7% of cases (1 of 7). Finally, *exposed* and *sealed* graves included these objects in equal proportions (4 of 14, or 28.7% and 2 of 6, or 33.3%, respectively). In sum, southwest cluster male burials of both age categories were generally associated with bifaces.

Blades and Flakes

Lithic flakes are commonly designated as ‘blades’ if their length exceeds their width by a factor of two or greater, and they exhibit generally parallel sides (Odell 2003:45). Blades can also be defined as those removed from a blade core. Russian scholars identify flakes according to two additional terms, ‘*otshchep*’ (отщеп) and ‘*skol*” (скоzль). The former refers to a flake in which the length is smaller than the width, while the latter are generally longer than they are wide. For this analysis, I made no distinction with regard to general proportions or sizes of blades and flakes, nor did I distinguish among primary, secondary, or tertiary flakes. Visible retouch, if present, was not assessed. In general, these artifacts were viewed as a single analytical unit.

Kurma XI burials contained a total of 61 blades/flakes (Table 22), which were manufactured from a number of materials including jasper, kaolinite, quartzite, and microquartzite. These 61 artifacts were recovered from a total of 9 Glazkovo burials (9 of 20, or 45.00%) specifically Burials 3, 5, 6, 9, 10, 12, 13, 19, and 26. Blades and flakes were confined almost exclusively to the southwest spatial cluster, as only 3 were found in the northwest cluster (Burial 19), and 7 on the upper terrace (Burial 26).

Four of 9 male burials (44.4%) included blades and flakes, while unsexed burials were associated with these artifacts in 4 of 7 cases (57.1%). Female graves, on the other hand, contained blades and flakes only in one case (1 of 4, or 25.0%). Little patterning was apparent with regard to age, as 5 of 10 (50.0%) *younger adult* interments included 12 of these objects, while 2 of 4 *older adult* burials (also 50.0%) produced 16. Only 1 of 5 *adult* burials (20.0%) was associated with blades and flakes, however. Seven of 14 *exposed* graves (50.0%) contained a total of 41 of these artifacts, while only 2 sealed burials (2 of 6, or 33.3%) contained blades and flakes. In general, these objects were quite widely distributed throughout the site, and were not exclusively associated with any one variable, although males in southwest cluster *exposed* graves seem to have been interred with the greatest quantity of these objects.

Knives

Three lithic knives, two of quartzite and one of jasper, were recovered from Burials 7-2 and 26, representing 10.00% of individuals interred at the site (Table 23). One knife was recovered from the southwest cluster, while the other was found on the upper terrace. Only one male burial (1 of 9, or 11.1%), and one unsexed individual (1 of 7, or 14.3%) were associated with knives, while none originated from graves of females. *Older adults* were associated with knives in only one case (1 of 4, or 25.0%), as were *adults* (1 of 5, or 16.7%); no *younger adult* burials produced knives, however. *Sealed* graves included knives in similar quantities to *exposed* graves (1 of 6, or 16.67%, and 1 of 14, or 7.14%, respectively), although the small quantity of knives overall made it difficult to identify any definitive patterns. It can only be stated that more knives were recovered from the northeast than the southwest cluster, and that no females were associated with these objects.

Scrapers

The 14 scrapers found at Kurma XI were generally of three types; end scrapers (n=8), side scrapers (n=2), and discoid scrapers (n=4) (Table 24). Scrapers at Kurma XI were manufactured primarily from jasper, although carbonaceous slate and quartzite were also utilized. All types and materials were considered jointly in this analysis.

Six of 20 (30.0%) Glazkovo burials at Kurma XI were associated with scrapers (Graves 3, 7-2, 13, 16, 25, and 26). Three of these burials were found in the southwest cluster, producing a total of 11 scrapers. Three scrapers were recovered from the two upper terrace cluster graves, while the remaining scraper was found in a northeast cluster grave. Little patterning was apparent with regard to the demographic variables, however. Two of 9 (22.2%) male burials were associated with scrapers, as compared with 1 of 4 (25.0%) female interments. Unsexed burials, however, were associated with scrapers in 42.9% of cases (3 of 7). *Younger adult* burials possessed scrapers in 20.0% of cases (5 of 10), while *older adults* were interred with scrapers in 50.0% of instances (2 of 4). The individuals in the former category, however, were associated with a total of 11 scrapers, as compared with the 3 found in *older adult* graves. *Adults* were associated with scrapers in 1 of 6 cases (16.7%). Finally, these artifacts were included in *exposed* and *sealed* graves in relatively equal proportions (4 of 14, or 28.6%, and 2 of 6, or 33.3%, respectively), although the *exposed* graves produced 13 scrapers as compared to only two from *sealed* interments. In sum, the inclusion of scrapers in burials seems to exhibit its strongest pattering according to spatial location, specifically the absence of these items in the northeast cluster. While there seemed to be no association between scraper inclusion and demographic variables, *exposed* graves contained the majority of these objects.

Other Lithic Objects

A few artifacts were classified as other lithic objects, as their functional purpose was unclear. Given the few specimens in this category, I chose to discuss them together. A total of three lithic objects were associated with two Glazkovo burials at Kurma XI (2 of 20, or 10.0%), both of which were located in the southwest cluster. Burial 10, assessed as a *younger adult* male in a *sealed* grave, was interred with a tool fragment of unknown function. Burial 13, an *older adult* male interred in an *exposed* grave, was associated with a worked nodule of quartzite as well as a slate tool that resembled a cleaver.

Organic Implements

Bone/Antler Points

Points made from bone and antler were among the most numerous items found at Kurma XI. While these objects were classified as implements, it was difficult to establish their exact functions. Ten of 20 (50.0%) Kurma XI Glazkovo burials were associated with a total of 32 bone/antler points (Table 25), specifically Burials 1, 3, 4, 6, 7-2, 10, 12, 16, 19, and 26. These artifacts were found in all three spatial clusters: with 7 of 12 burials in the southwest cluster (58.3%), with 2 of 6 interments in the northeast cluster (33.3%), and 1 of 2 on the upper terrace (50.0%). The majority of these points (n=28) were recovered from the southwest cluster, while the northwest and upper terrace clusters produced only 3 and 1, respectively. Bone/antler points were equally likely to be associated with males as females, as 5 of

9 male burials (55.6%) and 2 of 4 female burials (50.0%) included these objects. Male burials, however, included a total of 19 points (11.1 artifacts per burial), while females were only interred with a total of 4 (2 artifacts per burial). Unsexed burials were associated with a total of 9 points from 3 graves (3 of 7, or 42.9%). *Younger adult* burials included bone/antler points in 6 of 10 cases (60.0%), as compared to 2 of 4 *older adult* burials (50.0%), and 2 of 6 *adult burials* (33.3%). The majority of points (n=19) were associated with *younger adults*, however. *Exposed* graves contained points in 6 of 14 instances (42.9%), as compared to 4 of 6 (66.7%) of *sealed* burials, producing a total of 19 and 13 artifacts each. As such, although *younger adult* males in the southwest cluster were interred with the majority of these objects on a purely qualitative basis, these artifacts were widely dispersed through the site with no apparent associations.

Fishhook Shanks

At Kurma XI, fishhooks composed of bone and antler were much more common than those of lithic manufacture. Nine fishhooks were associated with two individuals, 2 with Burial 7-2, and 7 with Burial 10 (Table 19). Two of the fishhook shanks from Grave 10 were complete with preserved copper barbs. Both of these fishhook-associated burials were found in the southwest cluster; Burial 10 was a *younger adult* male while Burial 7-2 could only be described as an unsexed *adult*. Both interments, however, were classified as *sealed*. Due to the lack of age and sex determinations, and the small number of fishhook occurrences at Kurma XI, it was difficult to identify any patterning beyond the fact that no females were associated with fishhooks, and that both graves with these objects were *sealed* and located in the southwest spatial cluster.

Harpoons

Harpoons manufactured from bone or antler were uncommon grave inclusions at Kurma XI (Table 26), as only 8 were recovered from 3 burials (3 of 20, or 15.0%). These interments (Burials 1, 9, and 10) were all located within the southwest cluster. Two were assessed as male (Burials 1 and 10), while no sex determination was possible for the third. Harpoons were associated with two *younger adults* (2 of 11, or 18.2%), and one *adult* burial (1 of 6, or 16.7% of this age class), however the former produced 7 of the 8 harpoons. No *older adult* burials incorporated harpoons. *Exposed* graves contained harpoons in 2 of 14 cases (14.3%), and similarly in 1 of 6 (16.7%) *sealed* graves. The latter, however, contained a total of 7 harpoons. At KN XIV, only 3 burials were associated with harpoons, and limited osteobiographic information made it impossible to evaluate their occurrence according to sex and age of the burial. McKenzie (2006) notes that the infrequent presence of these items in KN XIV graves may indicate some form of distinction. At Kurma XI it seems that the only evident association with harpoons was the southwest cluster *younger adult* males in *sealed* graves.

Needles

Needles recovered from Kurma XI were manufactured from bone, antler, or copper. A total of 16 needles (2 of which were made of copper) were recovered from 5 (5 of 20, or 25.0%) Glazkovo graves (Table 27), specifically Graves 3, 9, 10, 12, and 16. This section only covers those of bone and antler; copper needles are reviewed with other metal items. Four of graves were located in the southwest cluster, composing 33.3% (4 of 12) of this spatial group. The remaining burial, Burial 16, was found in the northeast sector. One male burial (1 of 9, or 11.1%) and one female burial (1 of 4, or 25.0%) were associated with needles. The quantities of needles associated with each sex were similar; male graves contained a total of 4 needles, as compared with 4 from female interments. A total of 6 needles were found in association with 3 unsexed burials (3 of 7, or 42.9%). Three of 10 (30.0%) *younger adult* burials contained a total of 11 needles, as compared with 5 from 2 (2 of 5, or 40.0%) *adult* burials. No *older adult* graves contained needles. *Exposed* graves contained these artifacts in 3 cases (3 of 14, or 21.4%), as did 2 of 6 (33.3%) *sealed* graves. In summary, needles seem to mostly associate with the southwest spatial cluster. Although a greater proportion of female graves contained needles as compared with males, the number of occurrences is likely too small to make any tenable connections. It is important to note, however, that needles were one of the few items to occur in greater proportions of female graves than male graves.

Needle Boxes

Four needle boxes (or tubes) manufactured from avian long bone diaphyses were associated with Burials 5 and 10 (2 of 20, or 10.0%). The needle box recovered from Burial 10 contained two needles, one of bone or antler and one of copper. Interestingly, no needles were recovered from the needle box associated with Burial 5, although finer organic material may not have preserved. These two graves were located in the southwest cluster, and both individuals were assessed as *younger adult* males. Grave 12 was classified as *exposed* while Grave 10 was *sealed*. Again, the small quantity of needle boxes makes it difficult to demonstrate any specific patterns.

Spoons

Seven spoons composed of bone or antler (Table 28) were found in association with 6 Glazkovo burials at Kurma XI (6 of 20, or 30.0%; Burials 1, 5, 9, 10, 16, and 25). Four of these burials were located in the southwest cluster, representing 33.33% (4 of 12) of burials in this sector. The remaining two were located in the northeast (1) and upper terrace cluster (1), composing 16.7% (1 of 6) and 50.0% (1 of 2) of each cluster, respectively. The inclusion of these implements in burials did not seem to be associated with sex, as 2 of 9 (22.2%) of male burials, and 1 of 4 female burials (25.0%) included spoons. Unsexed individuals, however, were associated with spoons in 3 of 7 (42.9%) cases. Evaluating spoon inclusions with regard to age categories seemed to indicate some patterning, as 40.0% of *younger adult* burials included these artifacts, as compared with *older adults*, who were not associated with any spoons. *Adult* burials included spoons in 2 of 6 (33.3%) cases. Spoons were equally common in both *exposed* and *sealed* burials graves (4 of 14, or 28.6%, and 2 of 6, or 33.3%, respectively). As such, it seems that spoons can be associated with *younger adults* in the southwest cluster.

5.5.2 Ornaments

Ground Stone Ornaments

Cylindrical Beads

Cylindrical beads were commonly manufactured from lithic materials such as talc or kaolinite, as well as organics such as bone and antler. Only 61 beads were recovered from 2 Kurma XI graves (2 of 20, or 10.0%), and as such they were rather uncommon inclusions. In contrast, 39 KN XIV graves produced a total of 5,179 beads (McKenzie 2006). The two Kurma XI burials associated with beads belonged to the southwest (Burial 12) and northeast (Burial 16) clusters. No beads were found in male graves, but one female (1 of 4, or 25.0%) and one unsexed (1 of 7, or 14.3%) burial included these ornaments. Only1 of 10 (10.0%) *younger adult* burials was associated with beads, as was 1 *adult* (1 of 6, or 16.7%). No beads were found in graves of *older adults*. *Exposed* graves contained these ornaments in 7.2% of cases (1 of 14), while *sealed* burials were associated with beads in 1 of 6 cases (16.7%). At KN XIV, cylindrical beads were one of the defining attributes of the center cluster, as they were almost exclusively found in this sector. These were associated with individuals of both sexes and nearly all age groups, with the exception of neonates and 20–25 year-old individuals (McKenzie 2006). Similar patterning clearly does not exist at Kurma XI, as only females and *younger adults* from two different spatial clusters were associated with beads.

Disks

In the Cis-Baikal, stone disks were common grave inclusions during the Late Neolithic and Early Bronze Age (Michael 1958). At Kurma XI, a total of 46 disks were recovered (Table 29). These ornaments were produced in various sizes, and from a number of different materials such as aragonite, marble, and white, light green, and green nephrite, Aragonite was locally accessible in cave deposits, and disks may have been manufactured by sawing stalactites and stalagmites (Sekerin and Sekerina 2000). Green nephrite, as discussed above, was available only from the Eastern Sayan mountain range to the southwest of Lake Baikal. The sources for white and light green nephrite, in contrast, were found approximately 1000 km to the northeast of the lake, in the Vitim river basin (Sekerin and Sekerina 2000). As such, objects of nephrite, especially white nephrite, may have possessed the high material value due to large distances between the Little Sea and its source area.

In general, the distinction between disks and rings appears to be subjective, with no precise operational definition to distinguish between the two. In order to clarify the distinction to some degree, rings generally have inside diameters of similar size or larger than the width of the ring's body. Disks, on the other hand, generally have relatively wider bodies and smaller central openings (perforations).

Forty-six lithic disks were associated with 8 of 20 Kurma XI burials (40.0%), specifically Burials 5, 9, 10, 12, 13, 16, 18, and 19. Such a large quantity of disks from Kurma XI is in contrast to KN XIV, which produced only 27 disks from 79 graves (McKenzie 2006). Kurma XI graves containing disks were found in the southwest and northeast spatial clusters in relatively equal proportions (5 of 12, or 41.7%, and 3 of 6, or 50.0%, respectively). The southwest cluster graves, however, contained a total of 40 disks, while the northeast graves produced only 6. The proportion of male, female and undetermined sex burials in association with disks were concordant at 33.3% (3 of 9), 50.0% (2 of 4), and 42.9% (3 of 7), respectively. Male interments were associated with a total of 26 disks (2.9 disks per individual), as compared to only 5 with females (1.25 disks per individual) and 15 with unsexed burials (2.1 disks per individual). These ornaments accompanied 50.0% of *younger adults* (5 of 10), as compared to only 25.0% (1 of 4) of *older adults*. The former category produced only 10 disks (1.0 disk per individual), however, while the latter was associated with 19 (4.8 disks per individual). Adult individuals were interred with a total of 17 disks (2.8 disks per individual), in 33.3% (2 of 6) of cases. Finally, 3 of 6 (50.0%) *sealed* graves contained lithic disks, in contrast to only 5 of 14 (35.7%) *exposed* burials. The former, however, produced 12 disks (4.0 disks per individual), while the latter included 34 (2.4 disks per individual).

An additional pattern emerged among burials that were associated with multiple disks, namely that disks within a grave were commonly made of only one type of material, and that these materials varied on an inter-grave basis. Grave 10, for instance, contained six disks, all made from marble. Similarly, the nine disks associated with Burial 12 were all made from white nephrite, while the 19 disks found in Grave 13 were all aragonite. Graves 5 and 16 were small exceptions to this pattern, however. Grave 5 contained 5 disks, 4 of which were aragonite, while the remaining disk was of white nephrite. Similarly, Burial 16 was associated with 4 disks, 3 of aragonite and one of green nephrite.

Graves 10 and 13, whose disks were made of marble and aragonite, respectively, were both males interred in the southwest cluster; Burial 10 (*sealed*) was a *younger adult*, while Burial 13 (*exposed*) was an *older adult*. Grave 12, classified as an unsexed *adult* individual in an *exposed* grave, contained exclusively white nephrite disks, and was also found within the southwest cluster. Burials 5 and 16, associated with disks that were primarily manufactured from aragonite, were found in the southwest and northeast spatial clusters, respectively. Burial 5 was determined to be a *younger adult* of undetermined sex, interred in an *exposed* grave. Burial 16 was assessed as *younger adult* female, buried in a *sealed* grave. As such, while the material composition of disks was surprisingly uniform on an intra-grave basis, the inter-grave variability of these materials did not strongly associate with any of the independent variables. In sum, while disks appeared in graves of both sexes as *younger* and *older adult* age categories, the majority of disks were recovered from the graves of *older adult* males. Given the markedly different sources of the materials used to manufacture these disks, certain materials (such as white or light green nephrite) may have been more highly valued due to their general rarity in the region. Material composition may also have been symbolically representative, but it is difficult to explain this pattern further.

Large Half Rings

White nephrite half rings were one of the unique items recovered from Kurma XI. These rings (Figure 20), when whole, would have measured approximately 130 mm in external diameter. Two of these half rings conjoined, indicating they once formed a single object, while the other two did not, as their diameters were different. Interestingly, the outer borders of these rings were scored perpendicular to the ring body to facilitate breakage into halves. All four half rings were recovered from Grave

5 in the southwest cluster. This grave contained an unsexed *younger adult* in an *exposed* grave. Again, white nephrite may have been a valued commodity in the Bronze Age Little Sea region, and the presence of these large items of rare material can be viewed as an expression of wealth or prestige in association with this burial.

Lithic Pendants

A single lithic pendant, manufactured from green nephrite, was recovered from an unsexed *adult* individual in an *exposed* southwest cluster grave (Burial 12). This item was semi-lunar in shape, with a softly serrated straight edge and a perforation near the center of the curved edge (Figure 21). Analogous pendants have been recovered from two other cemeteries in the Little Sea region, one from Sarminskii Mys (Goriunova 2002, cited in McKenzie 2006) and a second from Shamanskii Mys (Konopatskii 1982, cited in McKenzie 2006). In both cases, these nephrite semi-lunar pendants were associated with well-provisioned female burials.

Rings

In contrast to the large quantity of disks found in Kurma XI Glazkovo graves, rings were somewhat rare. These ornaments were found in only 6 of 20 (30.0%) interments (Table 30), specifically Burials 1, 5, 7-2, 14, 15, and 16. Interestingly, Burial 5, the only Kurma XI interment associated with both rings and disks, was also associated with the white nephrite half rings discussed above. Ring-associated burials were more common in the northeast cluster, where they were found in 50.0% (3 of 6) of burials. The southwest cluster, conversely, contained only 3 burials associated with rings (3 of 12, or 25.0%). Each cluster, however, produced similar overall quantities of rings (3 and 4, respectively). Rings were included in similar proportions of male, female, and undetermined burials (3 of 9, or 33.3%, 1 of 4, or 25.0%, and 2 of 7, or 28.7%, respectively). Female graves, however, contained a total of 3 rings, while only 2 were found with males, as well as an additional 2 in unsexed burials. Rings may be associated with *younger adults* (5 of 11, or 45.5%), as these ornaments were not found any *older adult* graves. *Adult* burials included rings in 33.3% of cases (2 of 6). *Exposed* and *sealed* graves included rings in similar proportions (4 of 14, or 28.7, and

2 of 6, or 33.3%, respectively) as well as quantities (3 and 4, respectively). In sum, rings appear to be associated with females and *younger adults*, and with the northwest cluster. It was not possible to evaluate the material associations of rings in the same manner as disks, as only one grave (Grave 16) contained more than one ring.

Organic Ornaments

Bear Canine Pendants

Pendants manufactured from bear canines were not common grave inclusions at Kurma XI (Table 31), as only 5 were recovered from 2 of 20 graves (10.0%). These individuals (Burials 5 and 13) were found in the cemetery's southwest cluster, and were both assessed as male. One individual was classified as a *younger adult* (Burial 5), while the other was an *older adult* (Burial 13); both graves, however, were classified as *exposed*. Although these objects were few in number, bear canine pendants appear to be associated with southwest cluster males in *exposed* graves.

Deer Tooth Pendants

Pendants manufactured from the canines of red deer were among the most common items recovered from Kurma XI (Table 32). One hundred ninety-eight pendants were recovered from a total of 8 burials (8 of 20, or 40.0%). Seven of these individuals (Burials 1, 3, 4, 5, 6, 12, and 13) were found in the southwest cluster, representing 58.3% (7 of 12) of burials there. The remaining burial (Burial 18) was found in the northeast cluster (1 of 6, or 16.7%). Three of 9 (33.3%) male burials were accompanied by deer tooth pendants, as compared to 2 of 4, or 50.0%, of female individuals. Male graves, however, produced a total of 109 pendants (36.3 pendants per individual), as compared to 32 recovered from graves of females (16 pendants per individual). Unsexed burials included a total of 57 deer tooth pendants from 3 of 7 graves (42.9%), or 19.0 pendants per individual.

The proportions of burials with these ornaments were remarkably similar across age categories. Both *younger adult* and *older adult* burials included deer tooth pendants in 50.0% of cases (5 of 10, and 2 of 4, respectively), while *adult* burials included them in 1 of 6 (16.67%) of instances. *Younger adults* were associated with a total of 129 pendants (or 25.8 pendants per individual), while *older adult* graves contained 65 (32.5 pendants per individual). The single *adult* grave produced 4. Interestingly, deer tooth pendants were found exclusively in *exposed* graves, occurring in 8 of 14 (57.1%) cases. At KN XIV, red deer canine pendants were most commonly associated with the eastern cluster graves, although no females were associated with these items (McKenzie 2006).

In sum, although these objects were found in graves of both sexes and all age categories, the strongest associations with deer tooth pendants seem to be with the southwest spatial cluster, as well as *exposed* burials. Their exclusive presence in *exposed* burials may suggest that these artifacts were added to the grave during revisits, however more intensive analysis would be required to validate this hypothesis.

Boar Tusk Pendants

Although much more common in Early Neolithic Kitoi graves, one burial at Kurma XI was associated with a boar tusk pendant. This pendant was positioned over the neck of Burial 15, a *younger adult* male in a northeast cluster *exposed* grave. Boar tusk pendants are rare in the Little Sea region Bronze Age; only two similar items have been recovered, both from the Ulan-Khada IV cemetery in association with a male and female found in the lowest level of a multiple interment (McKenzie 2006).

Inscribed Human Bone

One of the most interesting and unique artifacts recovered from Kurma XI was an inscribed femur from a human child (Figure 22). This femur (which was found in association with its unfused epiphyses) was inscribed with a series of parallel lines along the diaphysis, as well as across the proximal anterior face. In addition, four small perforations were observed along the superior lateral aspect of the proximal portion. This item was recovered from a grave in the northeast spatial cluster that contained the remains of a *younger adult* female. It is worth noting that this burial, classified as *sealed,* was distinguished from nearly all others at Kurma XI by its association with a large quantity of ochre as well as its semi-articulated skeleton. As only a single such item was recovered, no patterning could be established. This inscribed femur does support a previously identified pattern, however. In this case, it seems that a number of northeast cluster graves were distinct with regard to mortuary ritual, both on intra-cluster and intra-site bases. In addition, these burials contained a number of features of mortuary ritual rare to the region in the Early Bronze Age, such as the boar tusk pendant and the extensive use of ochre. While it is likely that this human bone possessed symbolic or ritual significance, it is difficult to infer the nature of its meaning.

5.5.3 Metal Objects

While only 5 of 89 (5.6%) interments at KN XIV were associated with metal (McKenzie 2006), a total of ten metal artifacts (9 of copper and 1 of silver) were recovered from 8 of 20 (40.0%) Kurma XI Glazkovo graves. These artifacts could be grouped into a few types.

Metal Implements

Three metal implements were recovered from 2 of 20 (10%) burials, Burials 7-2 and 10. Burial 7-2 included a copper knife, while Burial 10 was accompanied by a copper knife and needle, the latter of which was found within a bird bone needle box. Both of these graves were located in the southwest cluster and were classified as *sealed*. Burial No. 7-2 was assessed as an *adult* of undetermined sex, while Burial 10 was determined to be a *younger adult* male.

Metal Ornaments

Three metal ornaments were found in association with 3 different Kurma XI burials (Burials 1, 14, and 15). The form and material composition of these objects, however, made them quite distinct from each other. The first, associated with Burial 1, was a large copper medallion. This ornament, which appears to have been cast in an open mold and was found at the base of the individual's sternum, featured an anthropomorphic figure within a circular frame. This medallion may be unique to the Cis-Baikal, although fragments of a similar artifact were recovered from Burial 19 at the Uliarba cemetery in the Little Sea region (Goriunova et al. 2004, cited in McKenzie 2006). The design of this object suggests that it may have been connected to ritual shamanic activities, and perhaps this individual was a religious practitioner or shaman (Goriunova and Weber 2003a). Burial 1 was determined to be a *younger adult* male, and was found in an *exposed* grave at the periphery of the southwest cluster.

The second metal ornament, a thick copper ring, was associated with Burial 14, a *younger adult* female interred in a *sealed* grave. Burial 15 was also associated with a metal ring approximately 2.5 cm in diameter, manufactured from hammered silver. Burial 15 was located in the northeast cluster, and was determined to be a *younger adult* male in an *exposed* grave. As discussed above, this burial was also distinctive due to its association with a boar tusk pendant, as well as the marked depth of the grave pit (1.2 m). This ring, found resting on the individual's forehead, is unique in the Little Sea of the Bronze Age.

Metal Fragments

This category includes three metal artifacts that could not be classified according to form or function. Burial 12 contained a piece of copper sheet rolled into a short tube, while Burial 14 was associated with two fragments of copper. Burial 12 was found in the southwest cluster, and determined to be a skeletally mature *adult* of undetermined sex. This grave was classified as *exposed*. Burial 14 was found in the northeast cluster, and assessed as a *younger adult* female interred in a *sealed* grave.

In general, these metal artifacts occurred in small quantities and were quite distinct from one another in form. For these reasons, it was difficult to identify any patterned associations, with the exception that all items were recovered from *younger adult* graves.

5.5.4 Raw Lithic Material

A few graves contained lithic objects that could only be classified as raw materials. While it is unclear as to whether these items were intentionally included or naturally occurring, they were found in direct association with the burials, and as such are described here. Raw lithic material was found in 2 of 20 (10.0%) graves, Graves 10 and 25. Grave 10, that of a male *younger adult*, contained two fragments of graphite, while Grave 26, a *younger adult* of undetermined sex, was associated with two fragments of mica.

5.5.5 Faunal Remains

This category included two types of faunal remains associated with Glazkovo burials at Kurma XI. The first type were *modified faunal remains*. These objects exhibited some degree of human modification, but their function was unclear and they were not classifiable as either implements or ornaments. The second type, *unmodified faunal remains*, exhibited no evidence of human modification. While taxonomic identifications were made for most specimens, only preliminary data were available in this regard, and therefore unmodified faunal bones were analyzed as a single unit, regardless of their species determinations.

Modified Faunal Remains

Two of 20 (10%) Kurma XI Glazkovo graves contained modified faunal remains. A long bone fragment worked into a teardrop-shape accompanied Burial 10, a southwest cluster *younger adult* male interred in a *sealed* grave. Burial 19 included 69 fragments of bone with incised, parallel lines along the shaft; found in the northeast cluster, this *sealed* grave was also that of a *younger adult* male. Again, the small number of occurrences of these artifacts made it difficult to make any inferences regarding their significance.

Unmodified Faunal Remains

Fifty-five unmodified faunal specimens (Table 33) were recovered from 8 of 20 Kurma graves (40.0%). Five (Burials 3, 6, 9, 10, 12) were located in the southwest spatial cluster, composing 45.5% of graves in this sector. The remaining three graves (Graves 14, 16, and 18) were found in the northeast cluster (3 of 6, or 50.0%). The deposition of this material seemed to be associated with sex, as female burials were accompanied by faunal remains in all cases (4 of 4, or 100.0%), as compared with only 11.1% (1 of 9) of male burials. Likewise, female graves produced a total of 18 faunal bone specimens, as compared to only 5 from male graves. Unsexed burials, interestingly, were associated with faunal bone in 3 of 7 (42.9%) instances, producing a total of 32 specimens. Similarly, *younger adult* burials included faunal specimens in 54.5% (6 of 11) of cases (a total of 41 artifacts), while none were included in older *adult burials*. *Adult* burials were associated with faunal bone in 2 of 6 (33.3%) instances, a total of 14 specimens. *Exposed* graves contained faunal bone in 35.7% (5 of 14), producing 38 specimens. *Sealed* graves, on the other hand, contained only 17 examples in 3 of 6 (50.0%) of cases. As such, it seems that unmodified faunal remains can be associated with females, as well as *younger adults* in the southwest cluster.

5.6 Assemblage Composition

In this section, I analyze the overall composition of grave assemblages by evaluating the proportions of associated ornaments, implements, and unmodified faunal remains among burials. To determine the total number of objects, artifacts were classified according to the above three categories and tallied, although a few artifacts required additional consideration. I employed aspects of Minimum Number of Individuals (MNI) methodology to count artifacts that were highly fragmented or were composed of many small parts. For example, I counted cylindrical beads according to how many clusters were associated with the burial, rather than the overall number of beads. Fragmented bone tools were counted by the number of items that the fragments appeared to form, rather than the total number of fragments. For example, if 25 fragments of bone/antler points were determined (or estimated) to have composed 4 complete items, the total number of items was counted as 4, not 25. To determine the percentage of ornaments and implements within a given burial, I divided the number of ornaments and implements by the total number of items associated with the burial, and multiplied the value by 100. These percentages were used to evaluate the proportions of ornaments and implements among burials. Four artifacts were not included in this calculation, as they could not be classified as ornaments, or implements. These included 2 fragments of copper from Grave 12, one from Grave 14, and a collection of modified faunal bone objects from Grave 19.

A total of 568 artifacts associated with Kurma XI Glazkovo burials were used in this calculation (Table 34). Overall, ornaments constituted 46.8% of associated material (266 artifacts), while implements composed 48.1% (273). The remaining 5.1% (29 of 571) were unmodified faunal remains. Although ornaments and implements occurred in relatively equal proportions when considering the site as a whole, assemblage composition varied considerably among interments. For example, Graves 8, 25, and 26, contained almost exclusively implements, while others, such as Graves 1, 15, and 18, were interred primarily with ornaments. The remaining 12 burials fell between these two extremes.

The distribution of ornament-dominated and implement-dominated grave assemblages continued to follow the established spatial patterns (Table 35). Southwest cluster burials on average were interred with relatively equal proportions of ornaments and implements, specifically 46.9% and 48.5%, respectively. Northeast cluster burials, conversely, were associated with assemblages that were composed of 63.8% ornaments and only 27.7% implements. The two upper terrace burials were also distinct in this regard, as they were associated with exclusively implements.

There also appeared to be a marked difference in grave assemblage composition according to sex (Table 36). Male burial assemblages, on average, were composed of 45.5% ornaments and 52.3% implements. Females were associated with a higher proportion of ornamental objects (63.6%) and only a small proportion of implements (19.7%). Assemblages of unsexed individuals were similar to those of males, as they were composed of 42.6% ornaments and 51.8% implements. While this trend seems to suggest that females were interred with more ornaments, male burials were, in fact, associated with an average of 15.6 ornaments per burial, as compared with 10.5 for females. Again, it is important to note that female assemblages contained markedly greater proportions of faunal items (16.7%); those of male and unsexed individuals were composed of few (2.3% and 5.6% of assemblages, respectively).

Assemblage composition did not seem to pattern according to age categories (Table 37). *Younger adult* assemblages were composed of 52.4% ornaments and 39.9% implements, while *older adults* possessed 47.2% ornaments and 52.8% implements. While these two age groups were associated with reasonably equitable proportions of ornaments and implements, *adult* assemblages were remarkably different in character. *Adults* were interred with 21.8% ornaments and 71.8% implements. The composition of these assemblages is difficult to explain, as individuals in the *adult* age category hypothetically belong in either the *younger adult* or *older adult* category. As such, these data suggest that ornaments and implements may not be as equally distributed among to the age classes as it appears. However it is difficult to evaluate how *adult* assemblages may affect the character of other two age categories' assemblages on average.

The composition of grave assemblages seemed to vary according to grave type (Table 38), as *exposed* graves, on average, contained 57.5% ornaments and 38.5% implements, while *sealed* graves, on the other hand, were associated with assemblages composed of only 12.8% ornaments and 78.6% implements. This suggests an association between highly ornamented individuals and graves constructed to facilitate direct interaction with the dead.

5.7 Quantities of Associated Items

Assemblages were also assessed quantitatively by analyzing the number of artifacts associated with each burial as well as the number of artifact types that occurred in each grave. Counting of artifacts followed the same protocol used to tabulate artifact quantities, in that cylindrical beads were tallied by cluster while fragments of objects were counted according to the quantity of whole artifacts represented. The 568 artifacts recovered from Kurma XI Glazkovo burials composed 29 types. The average quantity of items per burial was 28.4, while the number of types per burial was calculated to be 5.7, although assemblages were composed of as few as no types or as many as 15 (Table 39).

The distribution of artifact quantities exhibited a marked degree of variability among spatial clusters (Table 39). First, burials in the southwest cluster were associated with an average of 42.2 objects, well above the site average. Burials in the northeast cluster, by contrast, included far smaller quantities of items, averaging only 7.8 per burial. The upper terrace burials were associated with an average of 9.0 inclusions per grave. This trend was reflected in the number of types of items associated with burials as well. The southwest cluster interments contained an average of 6.3 types, marginally greater than average for all burials. The northeast cluster burials were associated with an average of 4.8 types, while the upper terrace graves contained 4.5 types of items on average. As such, grave assemblages were similarly diverse throughout the site, although the southwest cluster burials included many more objects than did the northeast and upper terrace cluster graves.

Quantities of grave goods according to sex also exhibited some degree of patterning (Table 39, Figure 24). Male burials were associated with an average of 34.2 inclusions, while female graves on average contained only 16.5. Unsexed burials were broadly congruent with males in this regard, as their assemblages were composed of an average of 28.1 artifacts. Males and females were associated with similar number of artifact types, however, with an average of 5.0 different types for males and 4.8 for females. Unsexed burials included an average of 4.0 different types. As such, Kurma XI males were associated with larger numbers of artifacts than were females and unsexed burials, although assemblages were similarly diverse among the sexes.

Some additional patterns were evident in the examination of the number of items by age category (Table 39, Figure 25). *Younger adults* were associated with an average of 28.5 items, while *older adult* graves contained an average of 45.0 accompaniments. *Adult* burials, by contrast, were associated with an average of only 15.6 objects, however. The number of types of inclusions did not pattern similarly, however, as *younger adults* burials contained an average of 5.7 types, as compared to 5.3 types for *older adults* and 5.8 for *adults*. Therefore, according to age category, *older adults* were commonly interred with larger assemblages on average, but these were of similar diversity (in quantitative terms) to those of *younger adults* and *adults*.

5.8 Summary

By exploring the degree of association among the independent variables and grave architecture, burial treatments, and grave inclusions, a number of general patterns can be identified. A brief summary of mortuary data from Kurma XI appears in Table 40. First, spatial location seemed to be the most consistent axis of differentiation, as most variables exhibited patterning in this regard. Sex also seemed to pattern variation in mortuary treatment at Kurma XI, particularly according to grave inclusions. Age was demonstrated to have few correlates, although some grave inclusions seemed to be distributed according to age distinctions. A number of variables were also interrelated among feature level attributes and grave inclusions that cross cut the primary independent variables of spatial location and sex. In the following section I summarize these results by presenting a review of mortuary variability at Kurma XI organized according to the two strongest patterning mechanisms, namely spatial location and sex.

The Southwest Cluster

The southwest cluster exhibited an internal homogeneity with regard to mortuary ritual, which separated it from the other two burial clusters at Kurma XI. This sector was dominated by male burials, particularly those in the *older adult* age category. Most southwest cluster burials were interred in extended supine positions; while skeletal completeness and articulation varied among burials, males were more commonly articulated, although their remains were often incomplete. Nearly all graves in the southwest cluster were also classified as *exposed*, which I argue facilitated direct interactions between the living and dead. This practice may also explain the common absence of skeletal remains in this cluster. In general, grave assemblages in the southwest were quantitatively larger and included artifacts rare or unique in the Bronze Age Little Sea region. These and other ornaments were manufactured from rare materials such as nephrite and copper, and likely represent substantial time investment with regard to their procurement and manufacture. Most of these items were recovered from male or unsexed burials. The largest portions of grave assemblages in the southwest cluster, however, were composed of implements.

Many of these items, such as arrowheads, harpoons, and fishhooks, were recovered from male burials and can be linked to hunting and fishing activities. The one female found in this cluster was also distinct, however, in that she was associated with more items (n=30) than any other Kurma XI female, although less than the males in the same cluster.

The burials in this cluster can be viewed as those of high status or wealthy individuals for a few reasons. First, as the mortuary ritual observed in this cluster was observably different from those of the other two clusters, these southwest cluster individuals were spatially segregated within the cemetery. Spatial segregation has been demonstrated as representative of status differences in mortuary contexts (Binford 1971:23; Carr 1995:150). Second, nearly all graves in this cluster were *exposed*, which likely facilitated direct interaction between the living and dead. These interactions suggest both that ancestors were an important part of daily life in Glazkovo society. More importantly, however, these *exposed* graves likely required corporate group involvement not only for the construction of the grave, but also for secondary rituals for which such a grave may have been constructed. High levels of corporate involvement are also evidence of status differentiation (Tainter 1977:332; Carr 1995:153). Grave goods representing high levels of energy expenditure both in procurement and manufacture, are also commonly viewed as badges of high status (Tainter 1977). Given these assumptions, the southwest cluster can be viewed as one of high status burials.

The Northeast Cluster

The northeast cluster was distinct from other spatial clusters due to its internal heterogeneity of mortuary ritual. This cluster featured equal proportions of males and females, but only those of *younger adult* age. Northeast cluster graves were more commonly *sealed*, although all three extended supine burials were *exposed*. In contrast to the disturbances to both types of graves in the southwest cluster, all extended supine interments exhibited undisturbed skeletal remains, although Burial 17's skull was likely removed post-interment. Burial positions in this cluster were rather variable. While three interments were extended supine, the remains of a female were found semi-articulated, and covered in a large amount of red ochre. Red ochre was also observed in an extended burial (Burial 17). Another burial was tightly flexed, and may have been interred in a bundle, while another was found completely disarticulated in an oval pit. Grave assemblages, in general, were small in quantity and of somewhat lower diversity. Two burials in this section included unique artifacts. An inscribed juvenile human femur, recovered from a female burial, was likely not an item of wealth or prestige, but perhaps was an object with a different symbolic meaning. It is difficult to determine the significance of such an object, as no other burials at Kurma XI, or in the Little Sea region, were associated with a similar artifact. An analogous observation can be made with regard to the boar tusk pendant and silver ring associated with Burial 15. The silver ring is more difficult to envision as an object devoid of material value. As no other artifacts of silver manufacture are known from the region during the Bronze Age, this artifact may have held high value due to its rarity.

Aspects of social differentiation were more difficult to identify in the northeast cluster as treatments were variable. The near total absence of 'wealthy' grave accoutrements, such as objects of copper or nephrite, in addition to the smaller proportion of *exposed* graves, suggests that burials in this cluster were not 'wealthy' or high status individuals. Binford (1971:23) suggests that unusual manners of death often modify the regular symbolic representation of identities in a mortuary context, most commonly through changes to body treatments. Similarly, Carr (1995:153) indicates that an individual's social classification at death was most often responsible for choices regarding treatment of the body. Northeast cluster burials were extremely variable with regard to body treatment; in 6 burials, there were 4 different body positions and 2 covered in red ochre. For these reasons, Kurma XI's northeast cluster appears to have been linked to the individual's social classification at death. This classification may be linked to their manner of death, perhaps due to illness or accident (drowning, hunting accidents, etc.).

The Upper Terrace Cluster

The upper terrace burials, represented by one unsexed *younger adult* and one *older adult* male, were similar in that both were found in tightly flexed positions in circular, *exposed* graves. Their burial assemblages were similar in diversity to those of other clusters, but were dominated by implements. The types of grave inclusions found with the *older adult* male were most congruent with those of other *older adult* males in the southwest cluster. The location of these graves within the cemetery, as well as their body position is similar to flexed burials found at the northeast edge of the nearby Uliarba cemetery (Goriunova et al. 2004, cited in McKenzie 2006). The presence of these two burials in the upper terrace, and their relationship to the other Kurma XI graves, however, is difficult to explain past the fact that they were spatially separated from the reminder of individuals and interred in sitting or bundled body positions.

The social significance of this cluster was also difficult to determine, as only two graves composed this cluster. These burials were most similar to those of the southwest cluster; both were non-females interred in *exposed* graves, associated with implement-dominated assemblages, as well as a nephrite axe. The fact that these two burials were spatially segregated from those of the southwest cluster, and were interred in flexed positions, suggests an additional social distinction. Due to the small number of individuals here, however, it is difficult to explain this cluster further.

5.9 Temporal Aspects of Mortuary Variability

Finally, it is necessary to discuss mortuary variability in the context of Kurma XI's intra-site chronology. In the preceding chapter, I suggested that the tempo of site use was characterized by a bimodal distribution of grave construction that formed two phases, Glazkovo Phase 1 and Glazkovo Phase 2 (Table 7). Due to the small sample size and the nature of stochastic measurement errors, however, it was difficult to evaluate whether the bimodality suggested that Kurma XI was created during two chronologically distinct use periods, or if the cemetery should be treated as a single analytical unit.

When these two use phases were viewed in the context of the spatial distribution of graves, nearly all burials located in the northeastern half of the site (northeast and upper terrace clusters) were interred during Glazkovo Phase 1 at Kurma XI. Similarly, nearly all burials added during Glazkovo Phase 2 were found in the southwestern half of the site. The analysis of mortuary variability in this chapter has demonstrated that the southwest, northeast, and upper terrace clusters were fundamentally different in a number of ways, including their respective demographic compositions, patterns of grave architecture, and the quantities and types of grave inclusions. Given this evidence, the evaluation of mortuary evidence in the context of these temporal patterns suggests that cemetery use at Kurma XI should be viewed as the product of two distinct phases.

The first component, which includes burials found in the northeast and upper terrace clusters, can be viewed as a disposal area for those of special or unique status, or perhaps who died under special circumstances. The southwest cluster of graves, which appear to be associated with wealthy and/or prominent members of the community, most of whom were male, represented the second temporal component at Kurma XI. This apparent chronological distinction suggests a scenario in which Kurma XI, a site originally designated for individuals of special status, was later adopted or co-opted by wealthy and/or socially prominent individuals. While it is difficult to identify the precise mechanisms behind such a process of site appropriation, this action likely created a symbolic association between the high status newcomers and the individuals already interred there. The former may have been attempting to symbolically link themselves with these special or unique individuals buried there earlier. McKenzie (2006) has noted that many Bronze Age cemeteries exhibit graves placed in close proximity to those of earlier Serovo individuals, perhaps in an attempt to suggest the existence of ancestor-descendant relationships.

Unfortunately, it is difficult to compare Kurma XI's apparently unique use pattern with other cemeteries in the Little Sea region, as nearly all suffer from incomplete excavations, few radiocarbon dates, or both. As a result, this temporal shift in the criteria for interment at Kurma XI may be the first demonstrable example of a change in a mortuary site's social meaning through time in this region. In the following chapter, I compare Kurma XI with other Little Sea region Bronze Age mortuary sites in an attempt to place mortuary ritual observed at Kurma XI into the regional context.

Chapter 6

Glazkovo Mortuary Variability at Kurma XI and in the Little Sea Region

In this chapter, I compare Kurma XI with other broadly contemporaneous mortuary sites in the Little Sea region. This will facilitate the placement of Kurma XI mortuary ritual into a regional context. To this end, I first discuss the chronological relationship between Kurma XI and these other Bronze Age cemeteries. Next, I compare the mortuary variability among sites to form hypotheses regarding the nature of Glazkovo social organization. For this discussion, I rely primarily on work completed by McKenzie (2006), which includes summaries of Bronze Age mortuary data from the Little Sea as well as a number of generalizations that characterize mortuary activity and social aspects of Glazkovo culture in this region.

6.1 Regional Chronology

To place Kurma XI into the regional chronology, I rely on radiocarbon determinations. Little Sea mortuary sites vary greatly regarding the number of available radiocarbon dates. Kurma XI enjoys a near complete set of radiocarbon dates, as does KN XIV. Most other sites, however, have been much less extensively dated; in reality, many have not been completely excavated (McKenzie 2006; Weber et al. 2005). As such, the dates returned from other Cis-Baikal mortuary sites likely do not represent the entire temporal range of site use. A complete list of available dates appears in Table 41 (Weber et al. 2005). Of the listed dates, Kurma XI and KN XIV samples were processed at the IsoTrace AMS laboratory in Toronto, Canada, while laboratories in Russia processed most of the remaining determinations. To ensure maximum comparability among data sets, only radiocarbon dates acquired from human bone samples are included. Dates provided in non-calibrated radiocarbon years before present are denoted BP, while those followed by BC are calibrated calendar years.

Given our knowledge regarding the tempo and duration of use at Kurma XI (Table 7), it was possible to place the site within the existing radiocarbon chronology of the Little Sea region. Figure 26 displays the Early Bronze Age dates from all

Isakovo, Serovo, and Glazkovo interments in the Cis-Baikal. A brief examination indicates that a number of cemeteries were utilized concurrently both within the Little Sea region as well as the Cis-Baikal as a whole (McKenzie 2006; Weber et al. 2005). Within the Little Sea region, it seems that graves were being constructed at Kurma XI, KN XIV, Shamanskii Mys, and Uliarba during the same general period. I return to the latter two sites later in this chapter, although these sites are represented by only a few dates, and little more can be said regarding their temporal relationships.

The large number of available determinations from KN XIV allows a more detailed examination of its temporal relationship with Kurma XI. Kurma XI and KN XIV are located in close physical proximity to each other and both were excavated by the BAP. As such, KN XIV provides an important body of comparative material to assess mortuary variability at Kurma XI. As such, it is necessary to investigate the temporal relationship among Kurma XI and KN XIV graves to gain a better understanding of how these two sites relate to each other.

6.2 Kurma XI and Khuzhir-Nuge XIV in Comparison

6.2.1 Chronological Relationships

Weber et al. (2005) subjected 28 high collagen dates from KN XIV burials to Bayesian analyses, and argued that grave construction at the site was normally distributed over five phases. Phase 3 at KN XIV, calculated (using BCal) to have been ~540 years in duration, almost entirely encompasses both Glazkovo phases at Kurma XI (calculated to be ~320 years), and contained 3 graves (Graves 38, 49, and 50). The first KN XIV Phase 3 burial (Burial 38) likely occurred at ~2750 BC, while the first Kurma XI Glazkovo burial was interred at ~3000 BC. These calculations indicate that the first Glazkovo burials at Kurma XI likely predate the first KN XIV Phase 3 burials, although Kurma XI was abandoned before the end of this KN XIV phase.

6.2.2 Mortuary Variability

Expression of mortuary variability at KN XIV was primarily organized within three distinct spatial groups within the cemetery. McKenzie (2006) first identified these groups, the East, Center, and West clusters (Figure 27), on the basis of the intra-cluster arrangement of graves relative to each other. Closer inspection of mortuary evidence revealed that the East Cluster graves featured larger surface pavings, extensive grave disruption, a paucity of subadults, grave assemblages that were greater in quantity and more diverse, and the presence of rare artifacts (McKenzie 2006:161–2). These individuals were viewed as having possessed higher status than others interred at KN XIV. The Center Cluster graves were arranged in rows and contained a large number of subadults. The use of fire was common, and almost exclusively confined to this sector, as was the occurrence of cylindrical beads and multiple interments (McKenzie 2006:162). The West Cluster was characterized by single burials associated with small quantities grave assemblages of low diversity. Subadults, use of fire, and cylindrical beads were rare in this sector (McKenzie 2006: 162). McKenzie argues that, "these spatial clusters do not appear to reflect a single social distinction, but rather they seem to encode a number of intersecting distinctions" (2005:162). He also suggests that KN XIV likely functioned as a community cemetery, as there seemed to be no exclusion based on age or sex distinctions. Age differences were represented through grave assemblages, however, as children were not interred with any implements, but almost invariably with ornaments. In addition, children's graves were always constructed within rows, which he has linked to their conceptualization as a part of the social collective (McKenzie 2006:163). Within this collective, he identifies horizontal distinctions (such as kin groups), as well as vertical differentiations as possible casual agents for the observed intra-cemetery variability in mortuary ritual at KN XIV.

KN XIV and Kurma XI were similar in terms of spatial organization, as graves at both sites were arranged into three clusters. Both sites also seemed to exhibit mortuary variability that was distinct among observable spatial groups. In this regard, the most similar spatial groups between sites are likely KN XIV's East Cluster and Kurma XI's southwest cluster. Both of these groups were composed of individuals interred with large, diverse assemblages that contained rare items in many cases. These two groups were also spatially segregated from clusters of graves with less rich assemblages. The remaining ~~two~~ clusters at KN XIV appear to be less similar to the other Kurma XI spatial groups, however. For example, while McKenzie demonstrates that KN XIV clusters were characterized by internal homogeneity with regard to mortuary ritual, Kurma XI's northeast cluster exhibited marked intra-cluster variability in burial treatments.

McKenzie (2006) also demonstrates that there were no apparent chronological distinctions in mortuary practice at KN XIV. Therefore this inter-site variability in mortuary practices seems to suggest an additional degree of difference between these two sites. The fact that Kurma XI exhibits a marked change in inter-phase mortuary practice, in the face of uniform treatments at KN XIV, suggests that the symbolic conceptualization of the site may have changed during the Bronze Age, as mortuary protocols within the culture appear to have been generally stable, at least when viewed from KN XIV.

According to these data, Kurma XI can be viewed as markedly different from KN XIV in a number of ways. First, McKenzie has portrayed the latter as a community site that included individuals from all segments of society. In contrast, Kurma XI seems to have been exclusive, in that only prime age adults were represented within the disposal area. We might expect such a community cemetery to be markedly larger than an exclusive site, and indeed KN XIV was much larger, containing 89 burials to Kurma XI's 20. While mortuary treatments at both sites were broadly similar in a number of respects, each site exhibited examples of treatment not found at the other cemetery. For example, many KN XIV burials were subjected to fire, while the use of ochre was not observed in any interments. Conversely, no evidence of fire was observed at Kurma XI, although extensive quantities of red ochre were used into two graves. In addition, cylindrical beads, a defining feature of the KN XIV's Center Cluster, may have represented some degree of horizontal social distinction between these burials and those of other clusters at KN XIV (McKenzie 2006). Both cylindrical beads and evidence of fire were almost entirely absent from Kurma XI. As such, it seems plausible to suggest that the horizontal group marked by these treatments may have been largely excluded from Kurma XI, demonstrating that Kurma XI may have been exclusionist not only according to age of the deceased, but also to certain factions, such as kin groups or lineages.

The differences among Kurma XI and KN XIV spatial clusters also suggest that their internal organization may have differed as well. Considering both KN XIV and Kurma XI together, both sites contained spatial groups specifically for the interment of high status, wealthy individuals, although only KN XIV seemed to incorporate the remainder of the community. As the remainder of Kurma XI individuals from did not exhibit analogous mortuary treatments to those at KN XIV, these Kurma XI northeast cluster burials appear to be somewhat anomalous. For the purpose of additional clarification in this regard, I now turn to other Bronze Age Little Sea cemeteries to evaluate the manner in which Kurma XI relates to Glazkovo mortuary activities.

6.3 Bronze Age Mortuary Variability in the Little Sea Region

To provide the materials for this discussion, I rely on the recent work of McKenzie (2006) for several reasons. First, his analysis provides the most comprehensive review of Little Sea mortuary sites yet available in English. Second, many of the original Russian publications were poorly circulated, and are generally not available outside Russia. In addition, McKenzie summarizes a large quantity of data in a manner that accommodates easy comparison with the work presented in this thesis. More importantly, McKenzie has suggested a number of hypotheses regarding the organization of mortuary ritual in the Little Sea region that provide a valuable additional context in which to examine the Kurma XI cemetery.

McKenzie examined 20 mortuary sites in the Little Sea region, and a few of his findings are relevant at this juncture. First, a number of similarities, such as burial orientation, interring children in multiple graves, and patterned inclusion of grave goods across the region indicated that Glazkovo cemeteries in the Little Sea region likely did not represent discrete communities. These sites did, however, exhibit considerable variability with regard to size, demographic composition, spatial organization, and the character of grave assemblages (McKenzie 2006:256). As such, McKenzie (2006:262) argues that the Glazkovo maintained a number of different mortuary sites contingent on a range of social, economic, and religious factors. A brief survey of these sites indicated that two in particular are most comparable with

Kurma XI: Shamanskii Mys, characterized as an exclusive cemetery, and Uliarba, which he classifies as a community site.

The Shamanskii Mys cemetery is located on the northwest coast of Ol'khon island on a small promontory. The site overlooks a spectacular pyramidal outcrop of rock that forms the southern border of a small cove (Figure 28). This outcrop also contains a cave, which allows passage from one side of the outcrop to the other. The area is considered sacred to the modern Buryat people who inhabit the region, and it seems likely that ancient groups would also have recognized it as a special place.

The Bronze Age component of the cemetery consisted of 7 graves (Figure 29) located in a cluster along the promontory edge (McKenzie 2006:237–8). These graves have been interpreted as those of prominent community members due to the large and diverse assemblages interred with them (Okladnikov and Konopatskii 1975:304, cited in McKenzie 2006). Similar to Kurma XI, Shamanskii Mys contained only prime age individuals, with the exception of one child whose scapula contained an embedded arrowhead. McKenzie notes that both male and female interments were present there, although the sexes were spatially segregated. All interments were found in extended supine positions, and no traces of ochre and little evidence of fire was observed. Thus, McKenzie classified Shamanskii Mys as an exclusive cemetery according to the demographic profile and grave inclusions. These burials were similar to the graves found in Kurma XI's southwest cluster, which also contained large, diverse assemblages.

A number of mortuary features observed at Kurma XI were also concordant with those at Uliarba, a site McKenzie characterized as a community cemetery due to the inclusion of nearly all age groups (McKenzie 2006:257). At Uliarba, McKenzie identified five spatial clusters of graves (Figure 30), which he argues represent intra-site social distinctions (2006:210). Comparison of mortuary ritual between Uliarba and Kurma XI suggested a few notable similarities. First, Uliarba females were most common in the northeastern cluster (3 of 4, or 75.0%). Similarly, half of Kurma XI's northeast cluster burials were female. Extensive use of red ochre was observed in three Uliarba burials, all of which were located in close proximity to one another within the cemetery's central cluster. Kurma XI Burials 14 and 17 also contained ochre and were positioned together in the northeast cluster. Evidence of fire use was entirely absent from Uliarba, as it was from Kurma XI. In addition, the northeasternmost grave at Uliarba contained a tightly flexed male associated with a large and diverse assemblage. Similarly, Kurma XI's Burial 26 was also a flexed male associated with a large quantity of objects, interred on the upper terrace at the northeastern periphery of the site.

Regarding grave inclusions at Uliarba, McKenzie (2006) reports that, while the quantities and number of types varied throughout the cemetery, the central cluster burials generally contained small assemblages of low diversity. In contrast, those outside the central cluster were much better provisioned. Among the latter group was Grave 19, located at the southwest corner of the site. This grave contained fragments of a large copper medallion that is thought to have been similar in form to the one recovered from Kurma XI's Grave 1, which was also located in the southwest end of Kurma XI.

McKenzie notes that, similar to KN XIV, the central cluster burials at Uliarba were composed of larger proportions of ornaments, while the reverse was the case in the peripheral burials. This pattern was reproduced at Kurma XI, where higher proportions of implements were associated with southwest and upper terrace burials, while assemblages from northeast cluster graves were composed of larger proportions of ornaments. According to this evidence, Kurma XI mortuary ritual seems to have most common with that of Uliarba, despite the latter's classification as a community site.

The comparison of Kurma XI to other Bronze Age Little Sea sites indicated some interesting commonalities. First, due to the complete lack of child and senescent burials, is seems that Kurma XI was a disposal area exclusive to prime age individuals. In this respect, Kurma XI was most similar to the Shamanskii Mys cemetery, which was similarly restricted. Both sexes were represented at each site, and the types and quantities of grave inclusions associated with Shamanskii Mys burials were congruent in the interments of the southwest cluster at Kurma XI. On the other hand, the spatial organization of mortuary ritual at Kurma XI was analogous to that observed at Uliarba, although the latter has been classified as a community cemetery.

The question then, is how do we view Kurma XI within the context of other Bronze Age Little Sea cemeteries? In Chapter 5, I suggested that the site seemed to have been the product of two discrete periods of use, each of which was characterized by a different set of criteria for interment. The southwest sector of the site, which contained nearly all of the 'wealthy' burials, was argued to represent the second period of site use. This cluster has analogies at Shamanskii Mys, KN XIV's east cluster, and the peripheral burials at the Uliarba cemetery. The chronologically earlier northeast portion of Kurma XI is more difficult to explain. Similar treatments, i.e. flexed burials, the use of red ochre, and some of the unique grave accoutrements, do not occur at KN XIV or Shamanskii Mys. These burials are more congruent with some of those found at Uliarba, which seems not to have been exclusive due to its demographic profile.

Given that Kurma XI shares a number of similarities with the community cemetery of Uliarba as well as the exclusive Shamanskii Mys, it might be tempting to describe Kurma XI as the early stages of a community cemetery. A number of observations suggest otherwise, however. First, Kurma XI only included interments of prime age adults. While preservation issues may have resulted in the complete disintegration of juvenile bones, Kurma XI, KN XIV, and Uliarba are all located in very similar physical contexts, namely on southeast-facing hill slopes. In addition, the observed grave architecture was very congruent among sites. As such, it seems highly unlikely that juvenile bones would preserve well at one site, while exhibiting no trace at another. Further, KN XIV contained a number of infants, children and adolescents, despite the fact that preservation of skeletal material was generally poorer than at Kurma XI. Finally, an inscribed juvenile femur was associated with one Kurma XI burial (Burial 14) and was well preserved; even its epiphyses were recovered. As such, it is unlikely that juveniles were interred at Kurma XI during the Bronze Age, as their remains would have preserved.

The second justification for continuing to view Kurma XI as an exclusive site pertains to patterns of grave construction over time. The temporal break between the two phases of use does not seem congruent with a community cemetery, as arguably only certain strata of the community seem to have utilized Kurma XI at a given time. As such, despite the apparent similarities in mortuary ritual between Uliarba and Kurma XI, the bimodal tempo of use suggests that even if all members of the community had utilized the site, they did not do so during the same period. As such, Kurma XI cannot be classified simply as a community disposal area.

6.4 Summary

In sum, aspects of mortuary ritual observed at Kurma XI are similar to those in a number of other cemeteries in the region. As such, the site remains distinct due to the two phases of grave construction and the distinct mortuary protocols between phases. Kurma XI was different from Shamanskii Mys, which likely maintained its association with 'wealthy' or high status individuals throughout the Bronze Age (McKenzie 2006). Similarly, Kurma XI was age exclusive, although similar in some aspects with Uliarba, a community site. The mortuary variability observed at Kurma XI, therefore, was not reproduced at either community or exclusive cemeteries in the Bronze Age Little Sea region. McKenzie notes that KN XIV was similarly distinct, as the structure of its mortuary variability was not replicated at any other Bronze Age site in the Little Sea area. He also states, regarding the inclusion of high status burials in community cemeteries, that "it was difficult to reconcile why some high-status individuals were interred at specialized cemeteries while other seemingly equivalent individuals were incorporated within community cemeteries" (McKenzie 2006:305). He suggests that a hypothesized "emerging elite" may have attempted to distinguish themselves through spatial segregation on both intra- and inter-cemetery levels (McKenzie 2006:316). While the adequacy of this hypothesis is difficult to evaluate within this work, in the case of Kurma XI, it seems that the interment of high status burials (in the southwest cluster) was temporally as well as spatially constrained, as the greater community was not utilizing the site during this period.

Chapter 7

Social Differentiation in the Little Sea Bronze Age

The analysis of mortuary variability at Kurma XI allows for the creation of a few hypotheses regarding the social organization of the Glazkovo in the Bronze Age of the Little Sea region. Since the twenty individuals interred at Kurma XI represent only a small sample, it was necessary to examine these patterns in the context of McKenzie's (2006) findings on mortuary variability and social organization in the Little Sea region. Of course, it was impossible to attribute each axis of variability to a specific aspect of social distinction, as it is unlikely that each feature of mortuary treatments was in some way representative of a specific aspect of social status. As such, the results of this section are exploratory in that they generate a number of ideas for future work.

Social status within Glazkovo society was likely differentiated along a number of axes. First, there was a spatial segregation on an inter-cemetery level. McKenzie (2006) recently argued that the large number of discrete cemeteries in the Little Sea region are not the product of separate communities, but instead the same community utilizing multiple disposal areas for political, social, or religious reasons. As such, each cemetery may have had discrete criteria for interment. The most apparent criterion at Kurma XI was age of the deceased, in that only prime age individuals were interred, in contrast to the full spectrum of age groups found at other mortuary sites nearby. This restricted demographic profile characterizes Kurma XI as an exclusive cemetery, and that interment at the site was at least indirectly contingent on age.

Spatial distinctions also seem to have been manifest on an intra-cemetery level. Within Kurma XI, graves were arranged into three spatial clusters, each of which was distinct with regard to mortuary ritual. The quantity and diversity of grave assemblages were highly variable among clusters, which can be linked with differential status in life. In particular, the southwest cluster burials can be viewed as high status individuals, as they were segregated from other interments at the site and were associated with large assemblages. These elements of ritual are commonly identified as markers of elite status, and might have held a more prominent role in the community.

Additional support for this interpretation can be found by reviewing the spatial distribution of grave types. Binford (1971:17) notes that individuals of high rank commonly maintain a greater number of duty-status relationships with other members of the community. Since nearly all graves in the southwest cluster were classified as *exposed*, it seems evident that this sector of the site was a focus of post-interment revisits and possibly secondary rituals that involved direct interaction with the dead. These revisits can be viewed as ritual meetings that maintain these duty-status relationships, which in turn imply a greater degree of social importance in connection with these individuals. Further, *exposed* graves in this cluster contained large quantities of ornaments manufactured from rare materials, which may also suggest that these individuals possessed high status.

Within the context of the Little Sea region, the mortuary data from Kurma XI also provide some clues with regard to the nature of this apparent social differentiation. First, it seems that status distinctions in Glazkovo society were likely not hereditary, and instead relied on achievement of status according to an individual's personal traits, such as sex and age, and achievements. This supposition is supported by the lack of children at Kurma XI, as well as the small grave assemblages associated with children at other Little Sea sites (McKenzie 2006). McKenzie indicates that in addition to the small number of items associated with children, no child burials contained implements, possibly indicating that subadults were not viewed as economic producers within the community (McKenzie 2006). Stated alternatively, this suggests that an individual's status was at least partially tied to their ability to be economically productive or to participate in economic activities. Given this evidence, status clearly seems to have been achieved rather than ascribed in Glazkovo society.

At Kurma XI, high status burials were argued to be those in the segregated southwest cluster, which were associated with large, diverse, implement-dominated assemblages. Both sexes were represented within this high status cluster, implying that high status positions were accessible to both men and women. The larger sets of accoutrements associated with males, in concert with the fact that females are underrepresented in this cluster, however, suggests that men may have had better access to the highest status positions. McKenzie (2006) has recently argued that the large quantities of implements associated with hunting in high status burials may denote that status was associated with hunting and fishing. In this regard, it is interesting to note that the sole female found in the southwest cluster was not associated with any items that could be directly linked to hunting and fishing, such as arrowheads, harpoons, or fishhooks. This female's assemblage was considerably smaller than males in the same cluster, but larger that those of other females in the rest of the cemetery. This may indicate that her status may not have been achieved through hunting or fishing prowess, but by some other means.

The distinction between male and female grave assemblages may be subtler than it appears, however. As mentioned in the previous chapter, McKenzie (2006) notes that a number of female burials in the Little Sea region were associated with large numbers of items. Two of these females, one from Sarminskii Mys and another from Shamanskii Mys, were associated with semi-lunar nephrite pendants similar to that recovered from Burial 12 at Kurma XI, determined to be an unsexed *adult*. If, as McKenzie hypothesizes, these semi-lunar pendants were associated exclusively with females, the large assemblage associated with Burial 12 would blur the distinction between male and female assemblages. The fact that this interment was not directly associated with any implements that could be undoubtedly linked to hunting activities, however, suggests again that females may have achieved high status in other manners. In sum, while high status may have been contingent on personal achievements, an individual's sex may have played a role in *how* that status was achieved, or at least, the manner in which it was represented in the mortuary context.

Similarly, the mortuary data at Kurma XI suggest that age distinctions were also represented both in terms of spatial location of the grave as well as burial inclusions. First, it seemed that *older adults* (those 35–50 years old) were more commonly found in the high status (southwest) cluster of Kurma XI, although also on the upper terrace. In addition, prestige ornaments such as nephrite axes and disks, were more commonly associated with *older adults*. This evidence may suggest that high status positions were stratified by age, or, at the very least, that age distinctions were recognized in mortuary contexts. The absence of senescents at Kurma XI, however, seems to indicate that although older adults may have had more time to acquire high status positions, these posts were abdicated in favor of younger individuals, possibly as early as 40 years of age.

Admittedly, the southwest spatial cluster produced most of the observed patterns of mortuary variability that were suggestive of social differentiation at Kurma XI. The northeast cluster was less informative, for a few reasons. First, burials in this cluster displayed a set of mortuary protocols that were markedly variable both within the cluster, as well in comparison with other clusters. In this way, it was difficult to establish any patterns, as, for example, only two burials contained extensive quantities of ochre, or two disarticulated burials were interred in grave pits of different shapes. In addition, while the determination of status in the southwest cluster was primarily contingent on the character of grave assemblages, the northeast cluster graves contained very few inclusions, many of which were markedly distinct from each other. In many aspects, the northeast cluster graves were quite different from those observed at the nearby community cemetery of KN XIV. As such, it is difficult to view these northeast cluster burials as those of the average community member. Burials exhibiting a number of similar protocols, such as the extensive use of ochre, were documented at the Uliarba cemetery, although all age classes were represented at this community cemetery. In sum, the basis of distinction of Kurma XI's northeast cluster is unclear, as the burial ritual seems to be distinct on intra-cluster, and intra-site bases. It therefore seems plausible to suggest that this area of the site may have been a disposal area for those of special status such as religious practitioners, or those who died under special circumstances.

In sum, the archaeological evidence indicates that Glazkovo society was composed of a number of status distinctions. As expected, there was no evidence for ascribed status. High status was likely achieved, and individuals of both sexes were buried in a manner congruent with high status. Males, however, seemed to have held higher status on a more regular basis. The achievement of high status may have been circumscribed by age, as only prime age adults were associated with high status burial treatments. These higher status positions may to be linked to economic production, particularly hunting and fishing activities, but also may have been associated with ritual or spiritual aspects of Glazkovo culture.

Chapter 8
Conclusions

8.1 Conclusions

This thesis analyzed mortuary variability at the Bronze Age Kurma XI cemetery, and has produced a number of significant findings relevant to the study of Middle Holocene hunter-gatherers in the Cis-Baikal region, as well as hunter-gatherers in general. These findings generally support the recent work of McKenzie (2006), but also present new insights. In addition, this work identified aspects of mortuary differentiation at Kurma XI that provide a number of clues regarding social organization in the Glazkovo culture in the Little Sea region during the Bronze Age.

First, I demonstrated that mortuary activity at Kurma XI was the product of three general episodes of use. The first took place in the Early Neolithic period, ~5400 BC, and consisted of four adult burials. Following these, the cemetery seems to have been abandoned for ~2500 years, a period that corresponds to the regional hiatus in cemetery use identified by Weber (1995) and Weber et al. (2002, 2005). Following this interlude, Glazkovo groups appropriated the site and began interring burials at there at ~3000 BC. The Glazkovo component use at Kurma XI was characterized by two phases.

The analysis of grave architecture and skeletal disturbance data from Kurma XI suggested that grave pits were likely not backfilled with sediment, and that burials may have been intentionally exposed following defleshing of the skeletal material. This exposure facilitated a greater degree of interaction between ancestors and descendants, a relationship that has been argued to be an important aspect of mortuary patterning in the Little Sea region (McKenzie 2006). Viewing grave disturbance from this perspective seems to account most parsimoniously for the variability in grave architecture, as well as conduction of skeletal remains, and *exposed* and *sealed* grave types was patterned along similar axes as other variables.

The systematic examination of a range of variables that coded mortuary ritual at Kurma XI indicated that spatial location and sex were the primary axes along which social distinctions were encoded at Kurma XI. Three spatial clusters of graves were identified, and were distinguished from each other in a number of additional respects. The southwest cluster contained burials that were very congruent with regard to body position, skeletal disturbance, grave type, and quantity and diversity of burial inclusions. The spatial segregation of individuals in the southwest cluster, in concert with the large, diverse grave assemblages and rare and unique items interred with them, strongly suggests that these burials were those of high status individuals within the Glazkovo society. In contrast, burials found in the northeast cluster were highly variable in their body positions, degree of skeletal disturbance, grave types, and presence of special treatments, such as incorporation of red ochre. Grave assemblages in the northeast cluster were generally small and less diverse, although two individuals were associated with unique items. These burials, due to their variable treatments and possession of unique objects, were interpreted to have been individuals of some form of special or unique status. The upper terrace cluster was composed of only two burials, which, while distinct from most other Kurma XI interments, seemed most similar to a cluster of tightly flexed burials found at Uliarba.

This spatial distinction of mortuary ritual, when compared to the temporal periods of site use, suggested that the southwest and northeast halves of the cemetery were also distinct temporally. While the mechanisms behind this shift in interment criteria are difficult to explain at present, it seems plausible that the later high status individuals may have been attempting to associate themselves with the special status burials interred there earlier.

The comparison of Kurma XI to other Little Sea mortuary sites supported the characterization of Kurma XI as an exclusive Glazkovo cemetery during both phases of its use. Although many features of mortuary ritual observed at Kurma XI were found at various other cemeteries in the region, the temporal distinction between the two clusters, as well as the narrow age range of burials, supported the hypothesis that Kurma XI was cemetery for select members of the community, although the determination of which component was interred there likely shifted during the Glazkovo phase of site use. This shift is one of the most distinctive features of the Kurma XI site, and marks it as unique within the Bronze Age of the Little Sea region.

Finally, the analysis of mortuary data in this thesis provided the basis for suggesting a number of aspects of Glazkovo social organization during the Bronze Age. First, the presence of only prime age individuals at Kurma XI, an exclusive cemetery, suggest that Glazkovo status distinctions and positions were not hereditary, and instead relied on achievement of status according to an individual's personal traits and accomplishments. Secondly, both males and females at Kurma XI were associated with large diverse assemblages, which suggests that status positions as marked by burial inclusions were open to both males and females. Further, males may have had greater access to high status positions, or may have held the highest of these positions. While status may have been contingent on personal deeds, it also seemed that age differences were acknowledged, as older individuals were more commonly associated with prestige items. In sum, status differences were encoded by spatial placement within the cemetery, and while treatments varied according to sex and age, these variations were primarily contingent on the burial's spatial location.

8.2 Directions for Future Research

A number of topics that require additional investigation were identified by this research. First, the characterization of the use phases proved to have important implications for the interpretation of the archaeological data from this site. As not all graves could be included in Bayesian analysis due to low collagen yields, it may be profitable to resubmit samples from some burials for radiocarbon dating in order to confirm the results of these analyses. In particular, Burials 7-1 and 7-2 should be redated, as their determinations were deemed to be significantly discordant and archaeological evidence suggests they were synchronous interments.

From a more general standpoint, the determination of tempo and duration of use at Kurma XI has underlined the call for extensive dating and rigorous analysis of radiocarbon determinations initiated by Weber et al. (2005). In this case, the temporal aspect of site use was a major factor in characterizing patterns of mortuary behavior at the site, and distinguished Kurma XI from other cemeteries in the Little Sea. Without the chronological results provided by the extensive radiocarbon dataset, a significant feature of site use at Kurma XI would have been overlooked.

8.3 Concluding Remarks

In sum, the examination of the mortuary data from Kurma XI, despite its small size, has produced a number of important hypotheses regarding intra-site temporal patterns of cemetery use in the Little Sea region, as well as social organization during the Bronze Age of the Cis-Baikal. The results of this thesis have also provided support for the detailed examination of radiocarbon dates (Weber et al. 2005), and have also characterized cultural processes occurring in the Cis-Baikal region during the Middle Holocene. Despite the long history of archaeological excavation, these processes are only now coming to light. I hope that this thesis has contributed a better understanding of social behaviors of the Bronze Age hunter-gatherers in the Little Sea region, and I look forward to the exciting and informative discoveries forthcoming.

Tables

Table 1 Summary of mortuary treatments and their associated patterning agents (adapted from Carr 1995:153).

Social Distinction	Mortuary Treatment
Sex	Grave inclusions
Age	Body preparation
	Number of burial types
	Energy expenditure
Vertical social position	Grave form
	Energy expenditure
	Grave inclusions
Social classification at death	Body treatment

Table 2 Summary of variables used to document the mortuary variability from O'Shea 1984:39.

General Category	Major Classes
Biological	Demographic
	Genetic
	Dietary
	Pathologic
Preparation and treatment	Disposal type
	Disposal program
Mortuary facility	Variety of receptacle
	Shape and dimensions
	Raw material(s)
	Orientation
Furnishings	Quantity
	Quality
	Variety
	Source
Locational	Macro-location of disposal area
	Meso-location within disposal area
	Micro-location within the disposal facility
Environmental	Entomological
	Botanical
	Faunal

Table 3 Culture history model for the Cis-Baikal Middle Holocene (Weber et al. 2005).

Period	Culture/Mortuary complex	Radiocarbon age BP	Calibrated age BC
Late Mesolithic	Early Kitoi	c. 8000-7000	c. 6800-5800
Early Neolithic	Late Kitoi	c. 7000-6100	c. 5800-4900
Middle Neolithic	Hiatus	c. 6100-5300	c. 4900-4200
Late Neolithic	Early Serovo-Glazkovo	c. 5300-4800/4400	c. 4200-3400/3000
Bronze Age	Late Serovo-Glazkovo	c. 4800/4400-3300	c. 3400/3000-1000

Table 4 Grave pit orientations at Kurma XI.

Azimuth (in degrees)	Bronze Age	Neolithic	Undetermined	Totals
Frequency				
0-45	4	0	0	4
46-90	13	0	1	14
91-135	0	2	1	3
136-180	0	2	1	3
181-225	0	0	0	0
226-270	0	0	0	0
271-315	0	0	0	0
316-359	0	0	0	0
Totals	17	4	3	24
Column %				
0-45	23.53	0.00	0.00	16.67
46-90	76.47	0.00	33.33	58.33
91-135	0.00	50.00	33.33	12.50
136-180	0.00	50.00	33.33	12.50
181-225	0.00	0.00	0.00	0.00
226-270	0.00	0.00	0.00	0.00
271-315	0.00	0.00	0.00	0.00
316-359	0.00	0.00	0.00	0.00
Totals	100.00	100.00	100.00	100.00
Row %				
0-45	100.00	0.00	0.00	100.00
46-90	92.86	0.00	7.14	100.00
91-135	0.00	66.67	33.33	100.00
136-180	0.00	66.67	33.33	100.00
181-225	0.00	0.00	0.00	0.00
226-270	0.00	0.00	0.00	0.00
271-315	0.00	0.00	0.00	0.00
316-359	0.00	0.00	0.00	0.00
Totals	70.83	16.67	12.50	100.00

Table 5 Burial orientations at Kurma XI.

Azimuth (in degrees)	**Bronze Age**	**Neolithic**	**Totals**
Frequency			
0-45	0	0	0
46-90	0	0	0
91-135	0	0	0
136-180	0	0	0
181-225	4	4	8
226-270	13	0	13
271-315	0	0	0
316-359	0	0	0
Totals	17	4	21
Column %			
0-45	0.00	0.00	0.00
46-90	0.00	0.00	0.00
91-135	0.00	0.00	0.00
136-180	0.00	0.00	0.00
181-225	23.53	100.00	38.10
226-270	76.47	0.00	61.90
271-315	0.00	0.00	0.00
316-359	0.00	0.00	0.00
Totals	100.00	100.00	100.00
Row %			
0-45	0.00	0.00	0.00
46-90	0.00	0.00	0.00
91-135	0.00	0.00	0.00
136-180	0.00	0.00	0.00
181-225	50.00	50.00	100.00
226-270	100.00	0.00	100.00
271-315	0.00	0.00	0.00
316-359	0.00	0.00	0.00
Totals	80.95	19.05	100.00

Table 6 Body positions at Kurma XI.

	Male	Probable Male	Probable Female	Female	Undetermined	Totals	Younger Adult	Older Adult	Adult	Totals
Frequency										
Extended	4	3	1	1	5	14	7	3	4	14
Flexed	0	2	0	0	1	3	2	1	0	3
Inconclusive	0	0	1	1	1	3	2	0	1	3
Total	4	5	2	2	7	20	11	4	5	20
Column %										
Extended	100.00	60.00	50.00	50.00	71.43	70.00	63.64	75.00	80.00	70.00
Flexed	0.00	40.00	0.00	0.00	14.29	15.00	18.18	25.00	0.00	15.00
Inconclusive	0.00	0.00	50.00	50.00	14.29	15.00	18.18	0.00	20.00	15.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Row %										
Extended	28.57	66.67	7.14	7.14	35.71	100.00	50.00	21.43	28.57	100.00
Flexed	0.00	0.00	0.00	0.00	33.33	100.00	66.67	33.33	0.00	100.00
Inconclusive	0.00	25.00	33.33	33.33	33.33	100.00	66.67	0.00	33.33	100.00
Total	20.00	0.00	10.00	10.00	35.00	100.00	55.00	20.00	25.00	100.00

Table 7 Radiocarbon determinations from Kurma XI burials.

No.	Grave-burial	Culture	Lab No.	Collagen Yield %	^{14}C Age BP	s.d.
1	Gr. 01	Glazkovo	TO-10996	0.7	3990	70
2	Gr. 03	Glazkovo	TO-11001	0.8	4020	50
3	Gr. 04	Glazkovo	TO-10998	6.2	4140	60
4	Gr. 05	Glazkovo	TO-11003	4.7	4030	60
5	Gr. 06	Glazkovo	TO-10997	2.4	3960	60
6	Gr. 07-1	Glazkovo	TO-10992	1.2	4010	60
7	Gr. 07-2	Glazkovo	TO-10995	2.2	4360	70
8	Gr. 08	Glazkovo	n/a	n/a	n/a	n/a
9	Gr. 09	Glazkovo	TO-11005	0.6	3630	50
10	Gr. 10	Glazkovo	TO-10994	5.4	4050	60
11	Gr. 12	Glazkovo	TO-11000	0.2	4060	100
12	Gr. 13	Glazkovo	TO-10999	2.5	4030	60
13	Gr. 14	Glazkovo	TO-10993	3.1	4190	60
14	Gr. 15	Glazkovo	TO-11002	5.1	4340	60
15	Gr. 16	Glazkovo	TO-11004	1.1	4240	60
16	Gr. 17	Glazkovo	n/a	n/a	n/a	n/a
17	Gr. 18	Glazkovo	TO-11677	1.1	4260	60
18	Gr. 19	Glazkovo	TO-11678	3.0	4010	60
19	Gr. 21	Early Neolithic	TO-11680	1.5	6450	80
20	Gr. 22	Early Neolithic	TO-11681	0.1	6340	120
21	Gr. 24	Early Neolithic	TO-11682	0.4	5850	70
22	Gr. 25	Glazkovo	TO-11684	0.6	4170	60
23	Gr. 26	Glazkovo	TO-11683	4.0	4240	60
24	Gr. 27	Early Neolithic	n/a	n/a	n/a	n/a

Table 8 Results of Bayesian outlier analysis performed on high collagen radiocarbon dates from Glazkovo burials at Kurma XI using a single prior probability of 0.1.

No.	Grave No.	Lab code.	^{14}C Age BP	s.d.	Run 1	Run 2	Run 3	Phase
1	Gr. 06	TO-10997	3960	60	0.15			5
2	Gr. 19	TO-11678	4010	60	0.10	0.09	0.08	4
3	Gr. 05	TO-11003	4030	60	0.09	0.08	0.07	
4	Gr. 13	TO-10999	4030	60	0.09	0.08	0.07	
5	Gr. 10	TO-10994	4050	60	0.08	0.07	0.06	
6	Gr. 04	TO-10998	4140	60	0.06	0.07	0.09	
7	Gr. 14	TO-10993	4190	60	0.08	0.11		3
8	Gr. 16	TO-11004	4240	60	0.11	0.09		2
9	Gr. 26	TO-11683	4240	60	0.11	0.10		
10	Gr. 18	TO-11677	4260	60	0.13	0.09		
11	Gr. 15	TO-11002	4340	60	0.13	0.08		
12	Gr. 07-2	TO-10995	4360	70	0.13	0.07		
13	Gr. 21	TO-11680	6450	80				1

Table 9 Calculated HPD regions (phase durations).

Cultural Group	Phase	No. of Graves	Time period	Modified Phase	Time Span		
Early Neolithic	1	1	~5400 BC	Early Neolithic			~2800 years
Hiatus		0	~5400 BC		~2470 years		
Glazkovo	2	5	~2950 BC	Glazkovo Phase 1	~160 years	~320 years	
	3	1	~2750 BC				
	4	5	~2750 BC	Glazkovo Phase 2	~180 years		
	5	1	~2500 BC				

Table 10 Kurma XI mortuary data.

Feature No.	Burial No.	Sex	Sex Class	Age	Age Class	Pit azimuth	Burial azimuth	Trench size (m)	Grave pit dimensions (m)			Cairn dimensions (m)				Cairn Formation	Body Position	Skeletal Condition	Grave Type	[illegible]	Collagen Yield %
									length	width	depth*	length*	width	height	volume						
1	1.1	M	M	20-35	Y	55	235	6 x 7	1.75	0.65	0.70	2.30	1.20	1.15	3.17	Ring	Extended	Articulated Complete	Exposed	3990±70	0.70
3	3.1	U	U	20-30	Y	75	255	6 x 6	2.40	0.75	0.45	2.30	1.20	1.00	2.76	Ring	Extended	Partially Articulated Partially Complete	Exposed	4020±50	0.80
4	4.1	M	M	35-45	O	65	245	5 x 4	2.05	0.65	0.65	2.85	1.15	1.00	4.28	Ring	Extended	Articulated Partially Complete	Exposed	4140±60	6.20
5	5.1	U	U	25-35	Y	65	245	5 x 5	2.20	0.70	0.60	2.90	1.10	1.10	3.51	Ring	Extended	Partially Articulated Partially Complete	Exposed	4030±60	4.70
6	6.1	F	F	20-29	Y	70	250	6 x 6	2.10	0.65	0.60	2.60	1.00	0.90	2.34	Ring	Extended	Partially Articulated Partially Complete	Exposed	3960±60	2.40
7	7.1	U	U	20+	A	45	225	5 x 7	2.10	1.20	0.55	2.10	1.10	0.85	1.96	Compact	Extended	Partially Articulated Partially Complete	Sealed	4010±60	1.20
7	7.2	U	U	20+	A	45	225	5 x 7	2.10	1.20	0.55	2.10	1.10	0.85	1.96	Compact	Extended	Partially Articulated Partially Complete	Sealed	4360±70	2.20
8	8.1	M	M	30-45	O	45	225	unavail	2.00	0.80	0.50	unavail	unavail	unavail	unavail	Ring	Extended	Articulated Complete	Exposed	unavail	unavail
9	9.1	U	U	20+	A	60	240	6 x 5	2.10	0.85	0.60	1.85	0.90	0.75	1.25	Ring	Inconclusive	Disarticulated Partially Complete	Exposed	3630±50	0.60
10	10.1	pM	M	15-25	Y	55	235	3 x 4	1.65	0.55	0.45	1.80	0.80	0.55	0.79	Compact	Extended	Articulated Complete	Sealed	4050±60	5.40
12	12.1	U	U	20+	A	80	260	5 x 5	2.20	0.65	0.50	2.20	1.00	0.85	1.87	Ring	Extended	Articulated Partially Complete	Exposed	4060±100	0.20
13	13.1	pM	M	35-45	O	50	230	4 x 3	2.40	1.40	0.65	2.05	0.90	0.65	1.20	Ring	Extended	Articulated Complete	Exposed	4030±60	2.50
14	14.1	F	F	20-30	Y	65	245	6 x 4	2.40	0.60	0.45	1.90	0.90	1.00	1.71	Irregular	Inconclusive	Partially Articulated Complete	Sealed	4190±60	3.10
15	15.1	M	M	19-21	Y	70	250	5 x 6	1.85	0.65	1.30	2.40	1.20	1.05	3.02	Ring	Extended	Articulated Complete	Exposed	4340±60	5.10
16	16.1	pF	F	20-30	Y	50	230	5 x 4	1.75	0.55	0.40	2.20	1.00	0.80	1.76	Compact	Extended	Articulated Complete	Sealed	4240±60	1.10
17	17.1	pM	M	20+	A	40	220	5 x 4	1.90	0.80	0.50	1.80	0.85	0.80	1.22	Irregular	Extended	Articulated Partially Complete	Exposed	no date	0.00
18	18.1	pF	F	17-19	Y	65	245	6 x 6	1.30	0.65	0.60	2.60	1.15	1.05	3.14	Ring	Inconclusive	Disarticulated Complete	Exposed	4260±60	1.10
19	19.1	pM	M	25-35	Y	n/a	n/a	6 x 5	0.75	0.75	0.80	2.20	1.25	0.95	2.61	Compact	Flexed	Disarticulated Partially Complete	Sealed	4010±60	3.00
25	25.1	U	U	20-35	Y	n/a	n/a	6 x 4	1.45	0.70	0.50	2.00	0.80	0.65	1.04	Ring	Flexed	Disarticulated Partially Complete	Exposed	4170±60	0.60
26	26.1	pM	M	40-44	O	n/a	n/a	4 x 3	0.50	0.50	0.55	1.30	0.70	0.50	0.46	Ring	Flexed	Disarticulated Partially Complete	Exposed	4240±60	4.00
Neolithic [illegible]																					
21	21.1	U	U	20-25	Y	140	320	3 x 4	1.70	0.70	0.25	1.85	0.75	0.55	0.76	Compact	Extended	Articulated Partially Complete	Sealed	6450±80	1.50
22	22.1	U	U	25-35	Y	140	320	4 x 4	1.60	0.45	0.30	1.95	0.80	0.60	0.94	Compact	On Side	Articulated Partially Complete	Sealed	6340±120	0.10
24	24.1	U	U	20-35	Y	130	310	4 x 6	1.80	0.50	0.40	2.70	1.05	1.20	3.40	Compact	Extended	Articulated Partially Complete	Sealed	5850±70	0.40
27	27.1	U	U	20-35	Y	125	305	3 x 3	1.60	1.60	0.20	2.70	1.00	0.55	1.49	Compact	Extended	Articulated Partially Complete	Sealed	unavail	unavail
Graves without [illegible]																					
2	n/a	n/a	n/a	n/a	n/a	60	n/a	4 x 4	1.60	0.40	0.30	2.10	1.20	0.80	2.02	Ring	n/a	n/a	Exposed	n/a	n/a
20	n/a	n/a	n/a	n/a	n/a	150	n/a	4 x 5	1.80	0.60	0.40	1.75	0.80	0.80	1.12	Compact	n/a	n/a	Sealed	n/a	n/a
23	n/a	n/a	n/a	n/a	n/a	100	n/a	5 x 5	0.80	0.50	0.30	1.80	0.90	0.85	1.38	Compact	n/a	n/a	Sealed	n/a	n/a
Non-grave features																					
11	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3 x 2	n/a	n/a	n/a	1.50	0.80	0.45	0.54	n/a	n/a	n/a	n/a	n/a	n/a
29	n/a	n/a	n/a	n/a	n/a	unavail	n/a	unavail	n/a	n/a	n/a	unavail	unavail	unavail	unavail	n/a	n/a	n/a	n/a	n/a	n/a
Unexcavated graves																					
28	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.	m.d.

Table 11 Sex determinations of Kurma XI burials.

	Bronze Age	**Neolithic**	**Totals**
Frequency			
Male	4	0	4
Probable Male	5	0	5
Probable Female	2	0	2
Female	2	0	2
Undetermined	7	4	11
Totals	20	4	24
Column %			
Male	20.00	0.00	16.67
Probable Male	25.00	0.00	20.83
Probable Female	10.00	0.00	8.33
Female	10.00	0.00	8.33
Undetermined	35.00	100.00	45.83
Totals	100.00	100.00	100.00
Row %			
Male	100.00	0.00	100.00
Probable Male	100.00	0.00	100.00
Probable Female	100.00	0.00	100.00
Female	100.00	0.00	100.00
Undetermined	63.64	36.36	100.00
Totals	83.33	16.67	100.00

Table 12 Age determinations of Kurma XI burials.

	Bronze Age	**Neolithic**	**Totals**
Frequency			
Younger Adult	11	4	15
Older Adult	4	0	4
Adult	5	0	5
Totals	20	4	24
Column %			
Younger Adult	55.00	100.00	62.50
Older Adult	20.00	0.00	16.67
Adult	25.00	0.00	20.83
Totals	100.00	100.00	100.00
Row %			
Younger Adult	73.33	26.67	100.00
Older Adult	100.00	0.00	100.00
Adult	100.00	0.00	100.00
Totals	83.33	16.67	100.00

Table 13 Paving stone surface formations at Kurma XI.

	Bronze Age	Neolithic	Undetermined	Totals
Frequency				
Ring	15	0	1	16
Compact	3	4	2	9
Irregular	2	0	0	2
Totals	19	4	3	26
Column %				
Ring	78.95	0.00	33.33	61.54
Compact	15.79	100.00	66.67	34.62
Irregular	10.53	0.00	0.00	7.69
Totals	100.00	100.00	100.00	100.00
Row %				
Ring	93.75	0.00	6.25	100.00
Compact	33.33	44.44	22.22	100.00
Irregular	100.00	0.00	0.00	100.00
Totals	73.08	15.38	11.54	100.00

Table 14 Exposed and sealed graves, according to sex and age.

	Male	Probable Male	Probable Female	Female	Undetermined	Totals	Younger Adul	Older Adult	Adult	Totals
Frequency										
Exposed	4	3	1	1	5	14	7	4	3	14
Sealed	0	2	1	1	2	6	4	0	2	6
Totals	4	5	2	2	7	20	11	4	5	20
Column %										
Exposed	100.00	60.00	50.00	50.00	71.43	70.00	63.64	100.00	60.00	70.00
Sealed	0.00	40.00	50.00	50.00	28.57	30.00	36.36	0.00	40.00	30.00
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Row %										
Exposed	28.57	21.43	7.14	7.14	35.71	100.00	50.00	28.57	21.43	100.00
Sealed	0.00	33.33	16.67	16.67	33.33	100.00	66.67	0.00	33.33	100.00
Totals	20.00	25.00	10.00	10.00	35.00	100.00	55.00	20.00	25.00	100.00

Table 15 Average grave pit dimensions of Kurma XI Glazkovo burials (Graves 7, 9, 15, 19, 25, and 26 removed).

	Average Dimensions			
	Length	Width	Depth	Volume
Spatial Cluster				
Southwest	2.09	0.77	0.57	0.91
Northeast	1.84	0.65	0.49	0.58
Total	2.01	0.73	0.55	0.81
Sex				
Males	1.96	0.81	0.58	0.91
Female	1.89	0.61	0.51	0.59
Undetermined	2.23	0.74	0.54	0.88
Total	2.01	0.73	0.55	0.81
Age Categories				
Younger Adult	1.94	0.64	0.53	0.66
Older Adult	2.15	0.95	0.60	1.23
Adult	2.07	0.77	0.53	0.85
Total	2.01	0.73	0.55	0.81
Grave Type				
Exposed	2.04	0.78	0.58	0.91
Sealed	1.93	0.57	0.43	0.47
Total	2.01	0.73	0.55	0.81

Table 16 Kurma XI Glazkovo body positions, according to sex and age.

	Male	Probable Male	Probable Female	Female	Undetermined	Totals	Younger Adult	Older Adult	Adult	Totals
Frequency										
Extended	4	3	1	1	5	14	7	3	4	14
Flexed	0	2	0	0	1	3	2	1	0	3
Inconclusive	0	0	1	1	1	3	2	0	1	3
Total	4	5	2	2	7	20	11	4	5	20
Column %										
Extended	100.00	60.00	50.00	50.00	71.43	70.00	63.64	75.00	80.00	70.00
Flexed	0.00	40.00	0.00	0.00	14.29	15.00	18.18	25.00	0.00	15.00
Inconclusive	0.00	0.00	50.00	50.00	14.29	15.00	18.18	0.00	20.00	15.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Row %										
Extended	28.57	66.67	7.14	7.14	35.71	100.00	50.00	21.43	28.57	100.00
Flexed	0.00	0.00	0.00	0.00	33.33	100.00	66.67	33.33	0.00	100.00
Inconclusive	0.00	25.00	33.33	33.33	33.33	100.00	66.67	0.00	33.33	100.00
Total	20.00	0.00	10.00	10.00	35.00	100.00	55.00	20.00	25.00	100.00

Table 17 Kurma XI Glazkovo burials, according to skeletal condition.

	Complete	Partially Complete
Articulated	1, 8, 10, 13, 15, 16	4, 12, 17
Patially Articulated	14	3, 5, 6, 7-1, 7-2
Disarticualted	18	9, 19, 25, 26

Table 18 skeletal conditions of Kurma XI Glazkovo burials, according to sex and age of burial.

	Male	Probable Male	Probable Female	Female	Undetermined	Totals	Younger Adult	Older Adult	Adult	Totals
Frequency										
Articulated Complete	3	2	1	0	0	6	4	2	0	6
Articulated Partially Complete	1	1	0	0	1	3	0	1	2	3
Partially Articulated Complete	0	0	0	1	0	1	1	0	0	1
Partially Articulated Partially Complete	0	0	0	1	4	5	3	0	2	5
Disarticulated Complete	0	0	1	0	0	1	1	0	0	1
Disarticulated Partially Complete	0	2	0	0	2	4	2	1	1	4
Totals	4	5	2	2	7	20	11	4	5	20
Column %										
Articulated Complete	75.00	40.00	50.00	0.00	0.00	30.00	36.36	50.00	0.00	30.00
Articulated Partially Complete	25.00	20.00	0.00	0.00	14.29	15.00	0.00	25.00	40.00	15.00
Partially Articulated Complete	0.00	0.00	0.00	50.00	0.00	5.00	9.09	0.00	0.00	5.00
Partially Articulated Partially Complete	0.00	0.00	0.00	50.00	57.14	25.00	27.27	0.00	40.00	25.00
Disarticulated Complete	0.00	0.00	50.00	0.00	0.00	5.00	9.09	0.00	0.00	5.00
Disarticulated Partially Complete	0.00	40.00	0.00	0.00	28.57	20.00	18.18	25.00	20.00	20.00
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Row %										
Articulated Complete	50.00	33.33	16.67	0.00	0.00	100.00	66.67	33.33	0.00	100.00
Articulated Partially Complete	33.33	33.33	0.00	0.00	33.33	100.00	0.00	33.33	66.67	100.00
Partially Articulated Complete	0.00	0.00	0.00	100.00	0.00	100.00	100.00	0.00	0.00	100.00
Partially Articulated Partially Complete	0.00	0.00	0.00	20.00	80.00	100.00	60.00	0.00	40.00	100.00
Disarticulated Complete	0.00	0.00	100.00	0.00	0.00	100.00	100.00	0.00	0.00	100.00
Disarticulated Partially Complete	0.00	50.00	0.00	0.00	50.00	100.00	50.00	25.00	25.00	100.00
Totals	20.00	25.00	10.00	10.00	35.00	100.00	55.00	20.00	25.00	100.00

Table 19 Complete list of archaeological finds from Kurma XI Glazkovo graves.

Grave #	Cat. #	Artifact Type	General Material	Detailed Material	Formal Description	Quantity	Functional Classification	Associated w/ burial
1	1.000	Unmodified Faunal Bone	Organic	Bone	Unidentified bone fragments	4	Unmodified	N
1	1.001	Arrowhead	Lithic	Quartz	Sub-triangular arrowhead with concave base, symmetrical barbs and denticulate retouch	1	Implement	N
1	1.002	Disk	Lithic	White nephrite	White nephrite disk	1	Ornament	N
1	1.003	Unmodified Faunal Bone	Organic	Bone	Faunal mandible	1	Unmodified	N
1	1.004	Spoon	Organic	Antler	Fragment of antler spoon with a pointed end (conjoins with 1.007)	1	Implement	N
1	1.005	Harpoon	Organic	Bone/antler	Two-sided harpoon with asymmetrical barbs and spur near the base for fastening	1	Implement	Y
1	1.006	Spoon	Organic	Bone/antler	Bone spoon/scraper fragment	1	Implement	Y
1	1.007	Spoon	Organic	Antler	Fragment of antler/bone spoon with denticulate end (conjoins with 1.004)	1	Implement	Y
1	1.008	Bone/Antler Point	Organic	Bone/antler	Antler/bone object with sharpened end and two spurs (on one face) for fastening	1	Implement	Y
1	1.009.01	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	26	Ornament	Y
1	1.009.02	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	8	Ornament	Y
1	1.009.03	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	1	Ornament	Y
1	1.010	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	4	Ornament	Y
1	1.011	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	5	Ornament	Y
1	1.012	Biface	Lithic	Jasper	Leaf-shaped (laurel-shaped) biface (knife)	1	Implement	Y
1	1.013	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with straight base	1	Implement	Y
1	1.014	Ring	Lithic	White nephrite	White nephrite ring	1	Ornament	Y
1	1.015.01	Bone/Antler Point	Organic	Bone	Bone points with split base	1	Implement	Y
1	1.015.02	Bone/Antler Point	Organic	Bone	Bone points with split base	1	Implement	Y
1	1.016	Medallion	Metal	Copper	Open cast copper medallion with anthropomorphic image	1	Ornament	Y
1	1.017	Pouch	Bark	Bark	Remains of birch bark pouch	1	Implement	Y
2	2.018	Disk	Lithic	Aragonite	Disk fragment	1	Ornament	N
3	3.019	Blade/Flake	Lithic	Jasper	Flake with partially retouched edge	1	Implement	N
3	3.020	Blade/Flake	Lithic	Jasper	Flake	1	Implement	N
3	3.021	Blade/Flake	Lithic	Quartz	Prismatic blade	1	Implement	Y
3	3.022	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	2	Ornament	Y
3	3.023	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	8	Ornament	Y
3	3.024	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.025	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	4	Ornament	Y
3	3.026	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	8	Ornament	Y
3	3.027	Needle	Metal	Copper	Fragment of copper needle	1	Implement	Y
3	3.028	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.029	Blade/Flake	Lithic	Jasper	Blade with alternating retouch on both faces	1	Implement	Y
3	3.030	Needle	Organic	Bone	Bone needle fragments	4	Implement	Y
3	3.031	Bone/Antler Point	Organic	Bone	Pointed Bone Implement (Spoon/Pressure Flaker?)	1	Implement	Y
3	3.032	Bone/Antler Point	Organic	Bone	Pointed Bone Implement (Needle/Awl?)	1	Implement	Y
3	3.033	Unmodified Faunal Bone	Organic	Bone	Unmodified Faunal Bone fragments (hare phalanges?)	5	Unmodified	Y
3	3.034.01	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.034.02	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.034.03	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.034.04	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.034.05	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y

3	3.034.06	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.034.07	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.034.08	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.034.09	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.034.10	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
3	3.035.01	Scraper	Lithic	Jasper	End-scraper on a blade with one retouched edge (small)	1	Implement	Y
3	3.035.02	Scraper	Lithic	Jasper	End-scraper on a blade with one retouched edge (small)	1	Implement	Y
3	3.035.03	Scraper	Lithic	Jasper	End-scraper on a blade with one retouched edge (small)	1	Implement	Y
3	3.036.01	Scraper	Lithic	Jasper	End-scraper on a blade with both edges retouched (medium)	1	Implement	Y
3	3.036.02	Scraper	Lithic	Jasper	End-scraper on a blade with both edges retouched (medium)	1	Implement	Y
3	3.037	Scraper	Lithic	Jasper	End-scraper on a blade with retouch on both edges	1	Implement	Y
3	3.038.01	Scraper	Lithic	Jasper	Round side-scraper on a flake	1	Implement	Y
3	3.038.02	Scraper	Lithic	Jasper	Round side-scraper on a flake	1	Implement	Y
3	3.039	Scraper	Lithic	Jasper	End-scraper/perforator with retouch	1	Implement	Y
3	3.040	Axe	Lithic	Green Nephrite	Green nephrite axe	1	Implement	Y
3	3.041.01	Bone/Antler Point	Organic	Bone	Bone point (Flaker?)	1	Implement	Y
3	3.041.02	Bone/Antler Point	Organic	Bone	Bone point (Flaker?)	1	Implement	Y
3	3.042	Unmodified Faunal Bone	Organic	Bone	Unmodified Faunal Bone fragments	11	Unmodified	Y
3	3.043	Unmodified Faunal Bone	Organic	Bone	Unmodified Faunal Bone fragments (bird long bones/needle box ?)	2	Unmodified	Y
4	4.044	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	2	Ornament	N
4	4.045	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with concave base	1	Implement	N
4	4.046	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	4	Ornament	N
4	4.047	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with straight base	1	Implement	N
4	4.048	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	37	Ornament	Y
4	4.049	Axe	Lithic	Green Nephrite	Green nephrite axe	1	Implement	Y
4	4.050	Axe	Lithic	Green Nephrite	Green nephrite axe	1	Implement	Y
4	4.051	Biface	Lithic	Jasper	Leaf-shaped knife/biface	1	Implement	Y
4	4.052	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	3	Ornament	Y
4	4.053.01	Bone/Antler Point	Organic	Bone	Bone point with split base	1	Implement	Y
4	4.053.02	Bone/Antler Point	Organic	Bone	Bone point with split base	1	Implement	Y
4	4.054	Bone/Antler Point	Organic	Bone	Bone point fragments with split bases (93 fragments)	30	Implement	Y
4	4.055.01	Bone/Antler Point	Organic	Bone/antler	Bone point with split base	1	Implement	Y
4	4.055.02	Bone/Antler Point	Organic	Bone/antler	Bone point with split base	1	Implement	Y
4	4.055.03	Bone/Antler Point	Organic	Bone/antler	Bone point with split base	1	Implement	Y
4	4.055.04	Bone/Antler Point	Organic	Bone/antler	Bone point with split base	1	Implement	Y
4	4.056	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	5	Ornament	Y
4	4.057	Arrowhead	Lithic	Jasper	Elongated sub-triangular arrowhead with slightly concave base	1	Implement	Y
4	4.058.01	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with concave base	1	Implement	Y
4	4.058.02	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with concave base	1	Implement	Y
4	4.059.01	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with straight base and edge retouch	1	Implement	Y
4	4.059.02	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with straight base and edge retouch	1	Implement	Y
4	4.060	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with slightly convex base and retouch on one face	1	Implement	Y
4	4.061	Arrowhead	Lithic	Jasper	Leaf-shaped arrowhead	1	Implement	Y
4	4.062	Arrowhead	Lithic	Jasper	Elongated arrowhead with slightly concave base	1	Implement	Y
4	4.063.01	Arrowhead	Lithic	Kaolinite	Arrowhead Fragment	1	Implement	Y

4	4.063.02	Arrowhead	Lithic	Kaolinite	Arrowhead Fragment	1	Implement	Y
4	4.063.03	Arrowhead	Lithic	Kaolinite	Arrowhead Fragment	1	Implement	Y
4	4.063.04	Arrowhead	Lithic	Jasper	Arrowhead Fragment	1	Implement	Y
4	4.063.05	Arrowhead	Lithic	Jasper	Arrowhead Fragment	1	Implement	Y
5	5.064.01	Pottery Fragment	Ceramic	Ceramic	Fragment of smooth-surfaced pottery without decoration	1	Implement	N
5	5.064.02	Pottery Fragment	Ceramic	Ceramic	Fragment of smooth-surfaced pottery without decoration	1	Implement	N
5	5.065	Blade/Flake	Lithic	Microquartzite	Blade fragment	1	Implement	N
5	5.066	Blade/Flake	Lithic	Quartz	Flake	1	Implement	N
5	5.067	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	8	Ornament	N
5	5.068	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
5	5.069.01	Half Ring	Lithic	White Nephrite	Broken half of large light nephrite ring	1	Ornament	Y
5	5.069.02	Half Ring	Lithic	White Nephrite	Broken half of large light nephrite ring	1	Ornament	Y
5	5.069.03	Half Ring	Lithic	White Nephrite	Broken half of large light nephrite ring	1	Ornament	Y
5	5.069.04	Half Ring	Lithic	White Nephrite	Broken half of large light nephrite ring	1	Ornament	Y
5	5.070.01	Needle Box	Organic	Bone	Needle box made of faunal long bone	1	Implement	Y
5	5.070.02	Needle Box	Organic	Bone	Needle box made of faunal long bone	1	Implement	Y
5	5.070.03	Needle Box	Organic	Bone	Needle box made of faunal long bone	1	Implement	Y
5	5.071	Spoon	Organic	Antler	Spoon with deep reservoir and long handle	1	Implement	Y
5	5.072.01	Bear canine pendant	Organic	Tooth	Bear canine pendant	1	Ornament	Y
5	5.072.02	Bear canine pendant	Organic	Tooth	Bear canine pendant	1	Ornament	Y
5	5.072.03	Bear canine pendant	Organic	Tooth	Bear canine pendant	1	Ornament	Y
5	5.073	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y
5	5.074	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	31	Ornament	Y
5	5.075	Bear canine pendant	Organic	Tooth	Bear tooth fragment	1	Ornament	Y
5	5.076	Ring	Lithic	White Nephrite	Disk	1	Ornament	Y
5	5.077	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
5	5.078	Disk	Lithic	Aragonite	Disk fragment	1	Ornament	Y
5	5.079	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
5	5.080	Blade/Flake	Lithic	Jasper	Blade with dorsal retouch on both edges	1	Implement	Y
5	5.081.01	Blade/Flake	Lithic	Microquartzite	Fine-grained flake	1	Implement	Y
5	5.081.02	Blade/Flake	Lithic	Microquartzite	Fine-grained flake	1	Implement	Y
5	5.081.03	Blade/Flake	Lithic	Microquartzite	Fine-grained flake	1	Implement	Y
5	5.081.04	Blade/Flake	Lithic	Microquartzite	Fine-grained flake	1	Implement	Y
5	5.082	Blade/Flake	Lithic	Microquartzite	Fine-grained prismatic blade	1	Implement	Y
5	5.083	Blade/Flake	Lithic	Microquartzite	Fine-grained quartzite blade	1	Implement	Y
5	5.084	Blade/Flake	Lithic	Flint	Flake	1	Implement	Y
6	6.085	Lithic Implement	Lithic	Cherty coal-based slate	Multifaceted burin on a blade	1	Implement	N
6	6.086	Unmodified Faunal Bone	Organic	Tooth	Ungulate (roe-deer?) incisor	1	Unmodified	N
6	6.087	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendant fragment	1	Ornament	N
6	6.088	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendant	1	Ornament	Y
6	6.089	Unmodified Faunal Bone	Organic	Tooth	Musk-deer (roe-deer?) incisors	2	Unmodified	Y
6	6.090	Blade/Flake	Lithic	Jasper	Blade with dorsal retouch on one edge	1	Implement	Y
6	6.091.01	Bone/Antler Point	Organic	Bone	Bone point fragment	1	Implement	Y
6	6.091.02	Bone/Antler Point	Organic	Bone	Bone point fragment	1	Implement	Y
6	6.092	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	14	Ornament	Y

6	6.093	Unmodified Faunal Bone	Organic	Tooth	Ungulate (roe-deer?) incisor	1	Unmodified	Y
6	6.094	Unmodified Faunal Bone	Organic	Tooth	Carnivore canines (bear ?)	2	Unmodified	Y
6	6.095	Unmodified Faunal Bone	Organic	Bone	Unmodified Faunal Bone fragments (hare phalanges ?)	2	Unmodified	Y
6	6.096	Blade/Flake	Lithic	Jasper	Flake with retouch	1	Implement	Y
7	7.097	Bone/Antler Point	Organic	Bone	Bone point fragment	1	Implement	N
7	7.098	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendant w/ 2 perforations	1	Ornament	N
7	7.098a	Lithic Implement	Lithic	?	Stone with 7 depressions arranged in 3 rows on surface	1	Implement	N
7	7.099.01	Disk	Lithic	Aragonite	Disk	1	Ornament	N
7	7.099.02	Disk	Lithic	Aragonite	Disk	1	Ornament	N
7	7.099.03	Disk	Lithic	Aragonite	Disk	1	Ornament	N
7	7.100	Ring	Lithic	White Nephrite	White nephrite ring	1	Ornament	Y
7	7.101	Tusk Pendant	Organic	Tusk	Boar tusk pendant fragment with perforation	1	Ornament	Y
7	7.102	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendant w/ 2 perforations	1	Ornament	N
7	7.103	Bone/Antler Point	Organic	Bone	Bone point fragment with lateral spur at base	1	Implement	N
7	7.103a	Lithic Implement	Lithic	Jasper	Perforator with elongated point	1	Implement	N
7	7.104.01	Fishhook	Organic	Antler	Fish hook shank with perforation for composite barb attachment	1	Implement	Y
7	7.104.02	Fishhook	Organic	Antler	Fish hook shank with perforation for composite barb attachment	1	Implement	Y
7	7.105.01	Bone/Antler Point	Organic	Bone	Bone point fragment with rhomboid cross-section	1	Implement	Y
7	7.105.02	Bone/Antler Point	Organic	Bone	Bone point fragment with rhomboid cross-section	1	Implement	Y
7	7.106	Bone/Antler Point	Organic	Bone	Bone point fragment with lateral spurs/dents at the base	1	Implement	N
7	7.107	Bone/Antler Point	Organic	Bone	Eight fragments of two bone points; one with flattened base	2	Implement	Y
7	7.108	Copper Knife	Metal	Copper	Copper blade (knife) with rounded ends	1	Implement	Y
7	7.109	Lithic Knife	Lithic	Jasper	Leaf-shaped knife-biface	1	Implement	Y
7	7.110.01	Arrowhead	Lithic	Cherty coal-based slate	Sub-triangular arrowhead with concave base and symmetrical barbs	1	Implement	Y
7	7.110.02	Arrowhead	Lithic	Cherty coal-based slate	Sub-triangular arrowhead with concave base and symmetrical barbs	1	Implement	Y
7	7.110.03	Arrowhead	Lithic	Cherty coal-based slate	Sub-triangular arrowhead with concave base and symmetrical barbs	1	Implement	Y
7	7.110.04	Arrowhead	Lithic	Cherty coal-based slate	Sub-triangular arrowhead with concave base and symmetrical barbs	1	Implement	Y
7	7.111	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with slightly concave base	1	Implement	Y
7	7.112.01	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with straight base	1	Implement	Y
7	7.112.02	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with straight base	1	Implement	Y
7	7.112.03	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with straight base	1	Implement	Y
7	7.112a	Scraper	Lithic	Flint	Side-scraper on a blade	1	Implement	Y
7	7.113.01	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with convex base	1	Implement	Y
7	7.113.02	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with convex base	1	Implement	Y
7	7.114.01	Arrowhead	Lithic	Jasper	Leaf-shaped arrowhead with slightly convex base	1	Implement	Y
7	7.114.02	Arrowhead	Lithic	Jasper	Leaf-shaped arrowhead with slightly convex base	1	Implement	Y
7	7.114.03	Arrowhead	Lithic	Cherty coal-based slate	Leaf-shaped arrowhead with slightly convex base	1	Implement	Y
7	7.115.01	Arrowhead	Lithic	Jasper	Leaf-shaped arrowhead with straight base	1	Implement	Y
7	7.115.02	Arrowhead	Lithic	Jasper	Leaf-shaped arrowhead with straight base	1	Implement	Y
7	7.116.01	Arrowhead	Lithic	Jasper	arrowhead with slightly concave base and denticulate retouch	1	Implement	Y
7	7.116.02	Arrowhead	Lithic	Jasper	arrowhead with slightly concave base and denticulate retouch	1	Implement	Y
7	7.117	Arrowhead	Lithic	Quartz	Sub-triangular arrowhead with concave base and symmetrical barbs	1	Implement	Y
7	7.118	Arrowhead	Lithic	Cherty coal-based slate	arrowhead fragment	1	Implement	Y
7	7.119	Arrowhead	Lithic	Jasper	Leaf-shaped arrowhead with slightly convex base	1	Implement	N
7	7.119a	Large Needle	Organic	Bone/antler	Bone point with perforation on the handle	1	Implement	N

8	8.001	Pottery Fragment	Ceramic	Ceramic	Pottery fragment with smooth walls	1	Implement	N
8	8.002	Blade/Flake	Lithic	Quartzite	Blade fragment	1	Implement	N
8	8.003	Arrowhead	Lithic	Flint	Arrowhead	1	Implement	N
8	8.005	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.01	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.02	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.03	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.04	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.05	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.06	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.07	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.08	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.09	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.004.10	Arrowhead	Lithic	Kaolinite	Arrowhead	1	Implement	Y
8	8.005.01	Arrowhead	Lithic	Quartzite	Arrowhead	1	Implement	Y
8	8.005.02	Arrowhead	Lithic	Quartzite	Arrowhead	1	Implement	Y
9	9.120	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with straight base	1	Implement	N
9	9.121	Unmodified Faunal Bone	Organic	n/a	Faunal maxilla fragment (ungulate)	1	Unmodified	N
9	9.122.01	Blade/Flake	Lithic	Microquartzite	Prismatic blade fragment	1	Implement	N
9	9.122.02	Blade/Flake	Lithic	Cherty coal-based slate	Prismatic blade fragment	1	Implement	N
9	9.123	Blade/Flake	Lithic	Microquartzite	Flake	1	Implement	Y
9	9.124	Spoon	Organic	Bone	Spoon	1	Implement	Y
9	9.125	Harpoon	Organic	Bone/antler	Harpoon fragment	1	Implement	Y
9	9.126	Bone Needle	Organic	Bone	Needle fragment	1	Implement	Y
9	9.127.01	Unmodified Faunal Bone	Organic	Tooth	Faunal incisor (roe-deer ?)	1	Unmodified	Y
9	9.127.02	Unmodified Faunal Bone	Organic	Tooth	Faunal incisor (roe-deer ?)	1	Unmodified	Y
9	9.128	Disk	Lithic	White Nephrite	White nephrite ring	1	Ornament	Y
9	9.129.01	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with straight base	1	Implement	Y
9	9.129.02	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with straight base	1	Implement	Y
9	9.130	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with round base and denticulate retouch	1	Implement	Y
9	9.131.01	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with straight base	1	Implement	Y
9	9.131.02	Arrowhead	Lithic	Jasper	Sub-triangular arrowhead with straight base	1	Implement	Y
9	9.132.01	Blade/Flake	Lithic	Kaolinite	Flake	1	Implement	Y
9	9.132.02	Blade/Flake	Lithic	Kaolinite	Flake	1	Implement	Y
9	9.132.03	Blade/Flake	Lithic	Kaolinite	Flake	1	Implement	Y
9	9.132.04	Blade/Flake	Lithic	Kaolinite	Flake	1	Implement	Y
9	9.132.05	Blade/Flake	Lithic	Kaolinite	Flake	1	Implement	Y
9	9.132.06	Blade/Flake	Lithic	Kaolinite	Flake	1	Implement	Y
9	9.132.07	Blade/Flake	Lithic	Kaolinite	Flake	1	Implement	Y
9	9.133	Biface	Lithic	Jasper	Leaf-shaped (willow) biface	1	Implement	Y
10	10.134	Lithic Knife	Lithic	Green Nephrite	Green nephrite knife	1	Implement	N
10	10.135	Unmodified Faunal Bone	Organic	Tooth	Faunal tooth fragment	1	Unmodified	N
10	10.136	Harpoon	Organic	Bone/antler	Harpoon (leister ?)	1	Implement	Y
10	10.137	Harpoon	Organic	Bone/antler	Harpoon fragment with barbs on one side	1	Implement	Y
10	10.138.01	Harpoon	Organic	Bone/antler	Harpoon with symmetrical barbs and spurs at base	1	Implement	Y

10	10.138.02	Harpoon	Organic	Bone/antler	Harpoon with symmetrical barbs and spurs at base	1	Implement	Y
10	10.138.03	Harpoon	Organic	Bone/antler	Harpoon with symmetrical barbs and spurs at base	1	Implement	Y
10	10.138.04	Harpoon	Organic	Bone/antler	Harpoon with symmetrical barbs and spurs at base	1	Implement	Y
10	10.139.01	Bone/Antler Point	Organic	Bone	Bone point	1	Implement	Y
10	10.139.02	Bone/Antler Point	Organic	Bone	Bone point	1	Implement	Y
10	10.139.03	Bone/Antler Point	Organic	Bone	Bone point	1	Implement	Y
10	10.140.01	Needle	Organic	Bone	Needle fragment	1	Implement	Y
10	10.140.02	Needle	Organic	Bone	Needle fragment	1	Implement	Y
10	10.140.03	Needle	Organic	Bone	Needle fragment	1	Implement	Y
10	10.141	Bone/Antler Point	Organic	Antler	Antler point with denticulate notches on base	1	Implement	Y
10	10.142	Unmodified Faunal Bone	Organic	Bone	Seal mandible fragment	1	Unmodified	Y
10	10.143.01	Unmodified Faunal Bone	Organic	Claw	Bear claw	1	Unmodified	Y
10	10.143.02	Unmodified Faunal Bone	Organic	Claw	Bear claw	1	Unmodified	Y
10	10.143.03	Unmodified Faunal Bone	Organic	Claw	Bear claw	1	Unmodified	Y
10	10.144	Needle Box	Organic	Bone	Needle box made of bird long bone (copper stained) with copper needle inside	1	Implement	Y
10	10.144a	Needle	Metal	Copper	Cppper/bronze needle (found inside 10.144)	1	Implement	Y
10	10.144b	Needle	Organic	Bone	Cppper/bronze needle (found inside 10.144)	1	Implement	Y
10	10.145	Bone/Antler Point	Organic	Bone	Curved bone/antler point	1	Implement	Y
10	10.146	Bone/Antler Point	Organic	Bone	Bone/antler point fragment	1	Implement	Y
10	10.147	Modified Faunal Bone	Organic	Bone	Bone tool blank with elongated teardrop shape	1	Implement	Y
10	10.148	Blade/Flake	Organic	Bone	Bone plate/blade with one end sharpened	1	Implement	Y
10	10.149.01	Fishhook	Organic	Bone	Bone composite fishhook shank with perforations at base	1	Implement	Y
10	10.149.02	Fishhook	Organic	Bone	Bone composite fishhook shank with perforations at base	1	Implement	Y
10	10.149.03	Fishhook	Organic	Bone	Bone composite fishhook shank with perforations at base	1	Implement	Y
10	10.150.01	Fishhook	Organic/Metal	Bone + Copper	Bone composite fishhook shank with copper barbs inserted at base	1	Implement	Y
10	10.150.02	Fishhook	Organic/Metal	Bone + Copper	Bone composite fishhook shank with copper barbs inserted at base	1	Implement	Y
10	10.151	Copper Knife	Metal	Copper	Copper knife fragment	1	Implement	Y
10	10.152.01	Fishhook	Organic	Bone	Bone fishhook fragments with notches for line fastening	1	Implement	Y
10	10.152.02	Fishhook	Organic	Bone	Bone fishhook fragments with notches for line fastening	1	Implement	Y
10	10.153.01	Disk	Lithic	Marble	Disk	1	Ornament	Y
10	10.153.02	Disk	Lithic	Marble	Disk	1	Ornament	Y
10	10.153.03	Disk	Lithic	Marble	Disk	1	Ornament	Y
10	10.153.04	Disk	Lithic	Marble	Disk	1	Ornament	Y
10	10.153.05	Disk	Lithic	Marble	Disk	1	Ornament	Y
10	10.153.06	Disk	Lithic	Marble	Disk	1	Ornament	Y
10	10.154	Biface	Lithic	Jasper	Bifacial insert	1	Implement	Y
10	10.155	Arrowhead	Lithic	Jasper	Leaf-shaped arrowhead with notched convex base	1	Implement	Y
10	10.156.01	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with convex base	1	Implement	Y
10	10.156.02	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with convex base	1	Implement	Y
10	10.157.01	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with straight base	1	Implement	Y
10	10.157.02	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with straight base	1	Implement	Y
10	10.158.01	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with slightly convex base	1	Implement	Y
10	10.158.02	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with slightly convex base	1	Implement	Y
10	10.158.03	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowhead with slightly convex base	1	Implement	Y
10	10.159.01	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowheads with convex bases	1	Implement	Y

10	10.159.02	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowheads with convex bases	1	Implement	Y
10	10.159.03	Arrowhead	Lithic	Kaolinite	Sub-triangular arrowheads with convex bases	1	Implement	Y
10	10.160	Arrowhead	Lithic	Kaolinite	arrowhead with straight base	1	Implement	Y
10	10.161	Lithic Implement	Lithic	Jasper	Lithic tool fragment	1	Implement	Y
10	10.162	Blade/Flake	Lithic	Jasper	Blade with dorsal retouch on one edge	1	Implement	Y
10	10.163	Blade/Flake	Lithic	Jasper	Blade with dorsal retouch on both edges	1	Implement	Y
10	10.164.01	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
10	10.164.02	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
10	10.164.03	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
10	10.164.04	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
10	10.165.01	Blade/Flake	Lithic	Jasper	Flake	1	Implement	Y
10	10.165.02	Blade/Flake	Lithic	Jasper	Flake	1	Implement	Y
10	10.166.01	Raw Lithic Material	Lithic	Graphite	Graphite fragment	1	Unmodified	Y
10	10.166.02	Raw Lithic Material	Lithic	Graphite	Graphite fragment	1	Unmodified	Y
10	10.167	Unmodified Faunal Bone	Organic	Bone	Seal mandible fragment	1	Unmodified	Y
10	10.168	Bone/Antler Point	Organic	Bone/antler	Bone/antler point fragment	1	Implement	Y
10	10.169	Spoon	Organic	Bone/antler	Bone/antler spoon fragment	1	Implement	Y
11	11.170	Unmodified Faunal Bone	Organic	Tooth	Faunal tooth fragments	3	Unmodified	N
12	12.171	Axe	Lithic	Green Nephrite	Green nephrite axe with sharpened butt	1	Implement	N
12	12.172	Blade/Flake	Lithic	Jasper	Blade	1	Implement	N
12	12.173.01	Scraper	Lithic	Jasper	End-scraper on a blade with retouched edges	1	Implement	N
12	12.173.02	Scraper	Lithic	Jasper	End-scraper on a blade with retouched edges	1	Implement	N
12	12.174	Lithic Implement	Lithic	Sandstone	Pressure flaker (flaker ?)	1	Implement	N
12	12.175	Fishhook	Lithic	Talc	Anthropomorphic fishhook shank with notches at the top end for line fastening and perforation at the base for barb attachment	1	Implement	N
12	12.176	Scraper	Lithic	Jasper	End-scraper on a blade	1	Implement	N
12	12.177	Ring	Lithic	Green Nephrite	Light-green nephrite ring	1	Ornament	N
12	12.178	Scraper	Lithic	Jasper	End-scraper on blade with retouch on both edges	1	Implement	N
12	12.179	Disk	Lithic	Aragonite	Disk	1	Ornament	N
12	12.180	Disk	Lithic	Aragonite	Disk	1	Ornament	N
12	12.181	Lithic Implement	Lithic	Jasper	Elongated perforator with retouch on both edges	1	Implement	N
12	12.182	Bone/Antler Point	Organic	Bone	Bone point fragment	1	Implement	Y
12	12.183.01	Needle	Organic	Bone	Bone needle fragment	1	Implement	Y
12	12.183.02	Needle	Organic	Bone	Bone needle fragment	1	Implement	Y
12	12.183.03	Needle	Organic	Bone	Bone needle fragment	1	Implement	Y
12	12.184	Bone Awl	Organic	Bone	Bone awl stained by copper	1	Implement	Y
12	12.185	Bone/Antler Point	Organic	Bone	Bone point with rhomboid cross-section and flattened base	1	Implement	Y
12	12.186	Needle	Organic	Bone	Bone needle fragment stained by copper	1	Implement	Y
12	12.187	Unmodified Faunal Bone	Organic	Bone	Faunal mandible (seal ?) stained by copper	1	Unmodified	Y
12	12.188	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	4	Ornament	Y
12	12.189	Unmodified Faunal Bone	Organic	Bone	Hare phalanges	10	Unmodified	Y
12	12.190	Unmodified Faunal Bone	Organic	Bone	Faunal long bone fragments	1	Unmodified	Y
12	12.191	Lithic Pendant	Lithic	Green Nephrite	Semi-lunar green nephrite pendant	1	Ornament	Y
12	12.192	Blade/Flake	Lithic	Jasper	Blade with dorsal retouch on both edges	1	Implement	Y
12	12.193.01	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y
12	12.193.02	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y

12	12.193.03	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y
12	12.193.04	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y
12	12.193.05	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y
12	12.193.06	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y
12	12.193.07	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y
12	12.193.08	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y
12	12.193.09	Disk	Lithic	White Nephrite	Disk	1	Ornament	Y
12	12.194	Fishhook	Lithic	Aragonite	Anthropomorphic composite fishhook with notches for line fastening and perforation	1	Implement	Y
12	12.195	Cylindrical Beads	Lithic	Aragonite	Cylindrical talc beads	5	Ornament	Y
12	12.196	Metal Object	Metal	Copper	Copper tube	1	Undetermined	Y
12	12.197	Metal Object	Metal	Copper	Copper fragment	1	Undetermined	Y
12	12.198	Pouch	Bark	Bark	Fragments of birch bark pouch	1	Implement	Y
13	13.199	Lithic Implement	Lithic	Jasper	Perforator on a blade with retouch on both edges	1	Implement	N
13	13.200	Needle Box	Metal	Copper	Copper tube (needle box) with weaved string inside	1	Implement	N
13	13.201	Scraper	Lithic	Jasper	End-scraper on a blade with retouch on both edges	1	Implement	N
13	13.202	Blade/Flake	Lithic	Microquartzite	Prismatic blade fragment	1	Implement	N
13	13.203	Blade/Flake	Lithic	Microquartzite	Fine-grained quartzite flake	1	Implement	N
13	13.204.01	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
13	13.204.02	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
13	13.204.03	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
13	13.204.04	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
13	13.205	Blade/Flake	Lithic	Jasper	Blades	1	Implement	Y
13	13.206	Scraper	Lithic	Jasper	End-scraper on a blade	1	Implement	Y
13	13.207	Lithic Implement	Lithic	Slate	Lithic cleaver-like tool	1	Implement	Y
13	13.208	Abrasive	Lithic	Slate	Abrasive (hone)	1	Implement	Y
13	13.209	Lithic Implement	Lithic	Quartzite	Worked nodule	1	Implement	Y
13	13.210	Axe	Lithic	Green Nephrite	Green nephrite axe	1	Implement	Y
13	13.211	Axe	Lithic	Green Nephrite	Green nephrite axe	1	Implement	Y
13	13.212.01	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
13	13.212.02	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
13	13.212.03	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
13	13.212.04	Blade/Flake	Lithic	Jasper	Blade	1	Implement	Y
13	13.213	Biface	Lithic	Jasper	Leaf-shaped (willowleaf) biface	1	Implement	Y
13	13.214	Abrasive	Lithic	Slate	Abrasive fragment	1	Implement	Y
13	13.215	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.216.01	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.216.02	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.216.03	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.216.04	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.216.05	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.216.06	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.216.07	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.217	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	20	Ornament	Y
13	13.218	Bear canine pendant	Organic	Tooth	Bear tooth pendant	1	Ornament	Y
13	13.219.01	Disk	Lithic	Aragonite	Disk	1	Ornament	Y

13	13.219.02	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.220	Disk	Lithic	Aragonite	Disks	1	Ornament	Y
13	13.221.01	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.221.02	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.221.03	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.221.04	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.221.05	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.221.06	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.221.07	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
13	13.221.08	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
14	14.222	Disk	Lithic	Aragonite	Disk	1	Ornament	N
14	14.223	Ring	Metal	Copper	Copper ring fragment	1	Ornament	Y
14	14.224	Unmodified Faunal Bone	Organic	Bone	Unmodified Faunal Bone fragments	2	Unmodified	Y
14	14.225	Metal Object	Metal	Copper	Copper fragment	1	Undetermined	Y
14	14.225a	Inscribed Human Bone	Organic	Bone	Inscribed sub-adult femur, w/ epiphises	1	Ornament	Y
15	15.226	Blade/Flake	Lithic	Jasper	Flake with partial retouch on dorsal face	1	Implement	N
15	15.227	Ring	Metal	Silver	Silver ring	1	Ornament	Y
15	15.228	Tusk Pendant	Organic	Tusk	Split boar tusk pendant	1	Ornament	Y
16	16.229	Unmodified Faunal Bone	Organic	Bone	Lagomorph phalanges	8	Unmodified	Y
16	16.230	Spoon	Organic	Bone	Spoon with long handle and deep reservoir	1	Implement	Y
16	16.231	Bone/Antler Point	Organic	Bone	Bone point (faunal metapodial ?)	1	Implement	Y
16	16.232.01	Needle	Organic	Bone	Needle fragment (one complete needle, two fragmented)	1	Implement	Y
16	16.232.02	Needle	Organic	Bone	Needle fragment	1	Implement	Y
16	16.232.03	Needle	Organic	Bone	Needle fragment	1	Implement	Y
16	16.232.04	Needle	Organic	Bone	Needle fragment	1	Implement	Y
16	16.233	Biface	Lithic	Jasper	Leaf-shaped biface	1	Implement	Y
16	16.233a	Bone/Antler Point	Organic	Bone	Bone point	1	Implement	Y
16	16.234	Disk	Lithic	Green Nephrite	Light green nephrite disk	1	Ornament	Y
16	16.235	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
16	16.236	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
16	16.237	Cylindrical Beads	Lithic	Kaolinite	Cylindrical talc beads	56	Ornament	Y
16	16.238	Disk	Lithic	Aragonite	Disk	1	Ornament	Y
16	16.239.01	Ring	Lithic	Aragonite	Rings	1	Ornament	Y
16	16.239.02	Ring	Lithic	Aragonite	Ring	1	Ornament	Y
16	16.240	Scraper	Lithic	Jasper	Scraper-perforator on a blade	1	Implement	Y
17	17.001	Pottery Fragment	Ceramic	Pottery	Smooth-surfaced pottery fragment without decoration	1	Implement	N
18	18.002	Blade/Flake	Lithic	Quartz	Flake with dorsal retouch on one edge	1	Implement	N
18	18.003	Lithic Implement	Lithic	Microquartzite	Burin on prismatic blade	1	Implement	N
18	18.004	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendant	1	Ornament	N
18	18.005	Unmodified Faunal Bone	Organic	Tooth	Faunal tooth fragment	1	Unmodified	N
18	18.006	Unmodified Faunal Bone	Organic	Bone	Fish rib fragment	1	Unmodified	Y
18	18.007	Deer Tooth Pendant	Organic	Tooth	Red deer canine pendants	17	Ornament	Y
18	18.008	Disk	Lithic	Green Nephrite	Light green nephrite disk	1	Ornament	Y
19	19.009	Coin	Metal	undetermined	Siberian coin from the times of Catherine II	1	Undetermined	N
19	19.010.01	Pottery Fragment	Ceramic	Ceramic	Smooth-surfaced pottery fragment without decoration	1	Implement	N

19	19.010.02	Pottery Fragment	Ceramic	Ceramic	Smooth-surfaced pottery fragment without decoration	1	Implement	N
19	19.011	Blade/Flake	Lithic	Microquartzite	Prismatic blade fragment with one edge partially retouched on the dorsal face	1	Implement	N
19	19.012	Blade/Flake	Lithic	Microquartzite	Prismatic blade fragment with one edge partially retouched on the dorsal face and one worked end (cojoins with object 19.011)	1	Implement	N
19	19.013	Lithic Implement	Lithic	Gneiss	Cobble with one flake removed, broken in two	1	Implement	N
19	19.014	Lithic Implement	Lithic	Quartzite	Cleaver tool fragments	3	Implement	N
19	19.015.01	Blade/Flake	Lithic	Quartzite	Flake	1	Implement	N
19	19.015.02	Blade/Flake	Lithic	Quartzite	Flake	1	Implement	N
19	19.016	Blade/Flake	Lithic	Quartzite	Flake	1	Implement	N
19	19.017	Blade/Flake	Lithic	Quartzite	Flake	1	Implement	N
19	19.018	Spoon	Organic	Bone	Spoon fragments with flat reservoir	3	Implement	N
19	19.018a.01	Blade/Flake	Lithic	Quartz	Prismatic blade fragment	1	Implement	Y
19	19.018a.02	Blade/Flake	Lithic	Quartz	Prismatic blade fragment	1	Implement	Y
19	19.018a.03	Blade/Flake	Lithic	Quartz	Prismatic blade fragment	1	Implement	Y
19	19.018b	Bone/Antler Point	Organic	Bone	Bone point	1	Implement	Y
19	19.018c	Disk	Lithic	Green Nephrite	Lght-green nephrite disk fragment	1	Ornament	Y
19	19.018d	Modified Faunal Bone	Organic	Bone	Bone fragments with parallel incised lines along shaft	69	Undetermined	Y
21	21.019	Blade/Flake	Lithic	Quartz	Prismatic blade fragments	1	Implement	Y
25	25.000	Raw Lithic Material	Lithic	Mica	Mica fragments	2	Unmodified	Y
25	25.020	Scraper	Lithic	Jasper	Side-scraper on a flake	1	Implement	Y
25	25.021	Spoon	Organic	Antler	Antler spoon	1	Implement	Y
26	26.022	Scraper	Lithic	Jasper	Side-scraper on a flake	1	Implement	N
26	26.023.01	Blade/Flake	Lithic	Quartzite	Flake	1	Implement	Y
26	26.023.02	Blade/Flake	Lithic	Quartzite	Flake	1	Implement	Y
26	26.023.03	Blade/Flake	Lithic	Quartzite	Flake	1	Implement	Y
26	26.023.04	Blade/Flake	Lithic	Quartzite	Flake	1	Implement	Y
26	26.024	Blade/Flake	Lithic	Quartzite	Flake with partial retouch	1	Implement	Y
26	26.025	Adze	Lithic	Green Nephrite	Green nephrite adze	1	Implement	Y
26	26.026	Lithic Knife	Lithic	Quartzite	Knife	1	Implement	Y
26	26.027	Blade/Flake	Lithic	Quartzite	Worked flake	1	Implement	Y
26	26.028	Scraper	Lithic	CarbonaceousSlate	Discoid scraper	1	Implement	Y
26	26.029	Scraper	Lithic	Quartzite	Discoid scraper fragment	1	Implement	Y
26	26.030	Lithic Knife	Lithic	Quartzite	Knife with two cutting edges	1	Implement	Y
26	26.031	Blade/Flake	Lithic	Quartzite	Flake with retouch on both faces	1	Implement	Y
26	26.032	Bone/Antler Point	Organic	Bone	Bone point fragment	1	Implement	Y
26	26.033	Bone Tool Blank	Organic	Bone	Faunal long bone tool blank	1	Implement	Y
27	27.034.01	Blade/Flake	Lithic	Microquartzite	Prismatic microblade fragment with partial retouch on dorsal face	1	Implement	N
27	27.034.02	Blade/Flake	Lithic	Microquartzite	Prismatic microblade fragment with partial retouch on dorsal face	1	Implement	N
27	27.035	Blade/Flake	Lithic	Cherty coal-based slate	Prismatic microblade fragment	1	Implement	Y
27	27.036	Blade/Flake	Lithic	Quartz	Prismatic blade	1	Implement	Y

Table 20 Distribution of axes at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	0	0	1	1
Older Adult	5	0	0	5
Adult	0	0	0	0
Total	5	0	1	6

Table 21 Distribution of fishhooks at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	7	0	0	7
Older Adult	0	0	0	0
Adult	0	0	3	3
Total	7	0	3	10

Table 22 Distribution of arrowheads at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	13	0	0	13
Older Adult	25	0	0	25
Adult	1	0	24	25
Total	39	0	24	63

Table 23 Distribution of bifaces at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	2	1	0	3
Older Adult	2	0	0	2
Adult	0	0	1	1
Total	4	1	1	6

Table 24 Distribution of blades and flakes at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	12	2	22	36
Older Adult	16	0	0	16
Adult	0	0	9	9
Total	28	2	31	61

Table 25 Distribution of knives at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	0	0	0	0
Older Adult	2	0	0	2
Adult	0	0	1	1
Total	2	0	1	3

Table 26 Distribution of scrapers at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	0	1	10	11
Older Adult	2	0	0	2
Adult	0	0	1	1
Total	2	1	11	14

Table 27 Distribution of bone/antler points at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	11	4	4	19
Older Adult	8	0	0	8
Adult	0	0	5	5
Total	19	4	9	32

Table 28 Distribution of harpoons at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	7	0	0	7
Older Adult	0	0	0	0
Adult	0	0	1	1
Total	7	0	1	8

Table 29 Distribution of needles at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	5	4	2	11
Older Adult	0	0	0	0
Adult	0	0	5	5
Total	5	4	7	16

Table 30 Distribution of spoons at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	3	1	2	6
Older Adult	0	0	0	0
Adult	0	0	1	1
Total	3	1	3	7

Table 31 Distribution of disks at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	**Total**
Younger Adult	7	5	5	17
Older Adult	19	0	0	19
Adult	0	0	10	10
Total	26	5	15	46

Table 32 Distribution of rings at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	Total
Younger Adult	2	3	1	6
Older Adult	0	0	0	0
Adult	0	0	1	1
Total	2	3	2	7

Table 33 Distribution of bear canine pendants at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	Total
Younger Adult	0	0	4	4
Older Adult	1	0	0	1
Adult	0	0	0	0
Total	1	0	4	5

Table 34 Distribution of red deer canine pendants at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	Total
Younger Adult	5	3	5	13
Older Adult	4	0	0	4
Adult	0	0	1	1
Total	9	3	6	18

Table 35 Distribution of unmodified faunal remains at Kurma XI, according to sex and age categories.

	Males	Females	Undetermined	Total
Younger Adult	5	7	3	15
Older Adult	0	0	0	0
Adult	0	0	5	5
Total	5	7	8	20

Table 36 Summary of ornaments, implements, and unmodified faunal remains recovered from Kurma XI Glazkovo burials, by grave.

Grave No.	1	3	4	5	6	7-1	7-2	8	9	10	12	13	14	15	16	17	18	19	25	26	Totals
Frequency																					
Ornaments	46	22	45	45	15	0	1	0	1	6	15	40	2	2	7	0	18	1	0	0	266
Implements	9	30	52	12	4	0	28	13	17	52	10	17	0	0	9	0	0	4	2	14	273
Unmodified Faunal	0	4	0	0	7	0	0	0	2	7	3	0	2	0	1	0	1	0	2	0	29
Totals	55	56	97	57	26	0	29	13	20	65	28	57	4	2	17	0	19	5	4	14	568
Column %																					
Ornaments	83.64	39.29	46.39	78.95	57.69	0.00	3.45	0.00	5.00	9.23	53.57	70.18	50.00	100.00	41.18	0.00	94.74	20.00	0.00	0.00	46.83
Implements	16.36	53.57	53.61	21.05	15.38	0.00	96.55	100.00	85.00	80.00	35.71	29.82	0.00	0.00	52.94	0.00	0.00	80.00	50.00	100.00	48.06
Unmodified Faunal	0.00	7.14	0.00	0.00	26.92	0.00	0.00	0.00	10.00	10.77	10.71	0.00	50.00	0.00	5.88	0.00	5.26	0.00	50.00	0.00	5.11
Totals	100.00	100.00	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
Row %																					
Ornaments	17.29	8.27	16.92	16.92	5.64	0.00	0.38	0.00	0.38	2.26	5.64	15.04	0.75	0.75	2.63	0.00	6.77	0.38	0.00	0.00	100.00
Implements	3.30	10.99	19.05	4.40	1.47	0.00	10.26	4.76	6.23	19.05	3.66	6.23	0.00	0.00	3.30	0.00	0.00	1.47	0.73	5.13	100.00
Unmodified Faunal	0.00	13.79	0.00	0.00	24.14	0.00	0.00	0.00	6.90	24.14	10.34	0.00	6.90	0.00	3.45	0.00	3.45	0.00	6.90	0.00	100.00
Totals	9.68	9.86	17.08	10.04	4.58	0.00	5.11	2.29	3.52	11.44	4.93	10.04	0.70	0.35	2.99	0.00	3.35	0.88	0.70	2.46	100.00

Table 37 Summary of ornaments, implements, and unmodified faunal remains recovered from Kurma XI Glazkovo burials, by spatial cluster.

Spatial Cluster	Ornaments	Implements	Unmodified Faunal	Total
Frequency				
Southwest	236	244	23	503
Northeast	30	13	4	47
Upper Terrace	0	16	2	18
Total	266	273	29	568
Column %				
Southwest	88.72	89.38	79.31	88.56
Northeast	11.28	4.76	13.79	8.27
Upper Terrace	0.00	5.86	6.90	3.17
Total	100.00	100.00	100.00	100.00
Row %				
Southwest	46.92	48.51	4.57	100.00
Northeast	63.83	27.66	8.51	100.00
Upper Terrace	0.00	88.89	11.11	100.00
Total	46.83	48.06	5.11	100.00

Table 38 Summary of ornaments, implements, and unmodified faunal remains recovered from Kurma XI Glazkovo burials, by sex.

Sex	Ornaments	Implements	Unmodified	Total
Frequency				
Male	93	74	0	167
Probable Male	47	87	7	141
Probable Female	25	9	2	36
Female	17	4	9	30
Undetermined	84	99	11	194
Total	266	273	29	568
Column %				
Male	34.96	27.11	0.00	29.40
Probable Male	17.67	31.87	24.14	24.82
Probable Female	9.40	3.30	6.90	6.34
Female	6.39	1.47	31.03	5.28
Undetermined	31.58	36.26	37.93	34.15
Total	100.00	100.00	100.00	100.00
Row %				
Male	55.69	44.31	0.00	100.00
Probable Male	33.33	61.70	4.96	100.00
Probable Female	69.44	25.00	5.56	100.00
Female	56.67	13.33	30.00	100.00
Undetermined	43.30	51.03	5.67	100.00
Total	46.83	48.06	5.11	100.00

Table 39 Summary of ornaments, implements, and unmodified faunal remains recovered from Kurma XI Glazkovo burials, by age.

Age Categories	Ornaments	Implements	Unmodified	Total
Frequency				
Younger Adult	164	122	24	310
Older Adult	85	95	0	180
Adult	17	56	5	78
Total	266	273	29	568
Column %				
Younger Adult	61.65	44.69	82.76	54.58
Older Adult	31.95	34.80	0.00	31.69
Adult	6.39	20.51	17.24	13.73
Total	100.00	100.00	100.00	100.00
Row %				
Younger Adult	52.90	39.35	7.74	100.00
Older Adult	47.22	52.78	0.00	100.00
Adult	21.79	71.79	6.41	100.00
Total	46.83	48.06	5.11	100.00

Table 40 Summary of ornaments, implements, and unmodified faunal remains recovered from Kurma XI Glazkovo burials, by grave type.

Grave Type	Ornaments	Implements	Unmodified	Total
Frequency				
Exposed	248	163	17	428
Sealed	18	110	12	140
Totals	266	273	29	568
Column %				
Exposed	93.23	59.71	58.62	75.35
Sealed	6.77	40.29	41.38	24.65
Totals	100.00	100.00	100.00	100.00
Row %				
Exposed	57.94	38.08	3.97	100.00
Sealed	12.86	78.57	8.57	100.00
Totals	46.83	48.06	5.11	100.00

Table 41 Summary of average quantities and number of types of artifacts recovered from Kurma XI Glazkovo graves.

	Grave Inclusion Averages	
	Number of Types	Quantities
Spatial Cluster		
Southwest	6.25	41.92
Northeast	4.83	7.83
Upper Terrace	4.50	9.00
Total	5.65	28.40
Sex		
Male	4.25	41.75
Probable Male	5.60	28.20
Probable Female	6.00	18.00
Female	3.50	15.00
Undetermined	4.00	27.71
Total	5.65	28.40
Age Categories		
Younger Adult	5.73	28.18
Older Adult	5.25	45.00
Adult	5.80	15.60
Total	5.65	28.40
Grave Type		
Exposed	6.17	30.57
Sealed	5.36	23.33
Total	5.65	28.55

Table 42 Summary of mortuary data from Kurma XI.

Core Attributes				[illegible]					Grave Inclusions																													
Spatial Cluster	Sex	Burial Number	Age	Grave Type	Body Position	Skull Treatment	Ochre	Abrasive	Adze	Arrowhead	Axe	Bear canine pendant	Biface	Blades and Flakes	Bone/Antler Point	Copper Knife	Cylindrical Beads	Deer Tooth Pendant	Disk	Fishhook	Half Ring	Harpoon	Inscribed Human Bone	Lithic Knife	Large Needle	Lithic Implement	Lithic Pendant	Medallion	Metal Object	Modified Faunal Bone	Needle	Needle Box	Raw Lithic Material	Ring	Scraper	Spoon	Tusk Pendant	Unmodifed Faunal Bone
Southwest	Male	1	Y	E	E	P				P			P		P			P				P						P						P		P		
		4	O	E	E					P	P		P		P			P																				
		8	O	E	E	P				P																												
		10	Y	S	E	P				P			P	P	P	P			P	P		P				P				P	P	P	P			P		P
		13	O	E	E	P		P			P	P	P	P				P	P							P									P			
	[illegible]	6	Y	E	E	P								P	P			P																				P
	Undetermined	3	Y	E	E						P			P	P			P													P				P			P
		5	Y	E	E							P		P				P	P		P											P		P		P		
		7-1	A	S	E																																	
		7-2	A	S	E					P					P	P				P				P										P	P			
		9	A	S	C					P			P	P					P			P									P					P		P
		12	A	E	E									P	P		P	P	P	P					P		P		P		P							P
Northeast	[illegible]	15	Y	E	E	P																												P			P	
		17	A	E	E		P																															
		19	Y	S	F	P								P	P				P											P								
	[illegible]	14	Y	S	C	P	P																P						P					P				P
		16	Y	S	E	P							P		P		P		P												P			P	P	P		P
		18	Y	E	C	P												P	P																			P
Upper Terrace	[illegible]	26	O	E	F				P					P	P									P											P			
	U	25	Y	E	F																												P		P	P		

Legend		
Sex	M	Male
	F	Female
	U	Undetermined
Age	Y	Younger Adult
	O	Older Adult
	A	Adult
Grave Type	E	Exposed
	S	Sealed
Body Position	E	Extended
	C	Commingled
	F	Flexed
	P	Present
	A	Absent

Table 43 Radiocarbon dates obtained from Isakovo, Serovo, and Glazkovo burials in the Cis-Baikal.

No.	Region	Mortuary Site	Grave-Burial No.	Lab No.	Culture	^{14}C Age BP	s.d.	Collagen yield %	Source
1	Angara Valley	Bratskii Kamen'	Gr. 18-2	GIN-4480	Serovo	4790	50	m.d.	Mamonova and Sulerzhitskii 1989
2	Angara Valley	Bratskii Kamen'	Gr. 21	GIN-4482	Isakovo	5000	70	m.d.	Mamonova and Sulerzhitskii 1989
3	Angara Valley	Bratskii Kamen'	Gr. 20	GIN-4481	Isakovo	5320	160	m.d.	Mamonova and Sulerzhitskii 1989
4	Angara Valley	N. Seredkino	m.d.	GIN-4484	Glazkovo	3640	80	m.d.	Mamonova and Sulerzhitskii 1989
5	Angara Valley	N. Seredkino	Gr. 2	GIN-4483	Glazkovo	4600	100	m.d.	Mamonova and Sulerzhitskii 1989
6	Angara Valley	Ponomarevo	Gr. 10	GIN-4485	Isakovo	4720	170	m.d.	Mamonova 1991 (pers. comm.)
7	Angara Valley	Semenovo	Gr. 7-2	GIN-4488	Glazkovo	4030	60	m.d.	Mamonova and Sulerzhitskii 1989
8	Angara Valley	Semenovo	Gr. 2	GIN-4486	Glazkovo	4240	50	m.d.	Mamonova and Sulerzhitskii 1989
9	Angara Valley	Semenovo	Gr. 5	GIN-4487	Glazkovo	4340	70	m.d.	Mamonova and Sulerzhitskii 1989
10	Angara Valley	Semenovo I	Gr. 11	GIN-4489	Serovo	4790	100	m.d.	Mamonova and Sulerzhitskii 1989
11	Angara Valley	Semenovo I	Gr. 12	GIN-4490	Serovo	5100	50	m.d.	Mamonova and Sulerzhitskii 1989
12	Angara Valley	Semenovo II	Gr. 1	GIN-4491	Serovo	5120	100	m.d.	Mamonova and Sulerzhitskii 1989
13	Angara Valley	Serovo	Gr. 12	GIN-4495	Serovo	4530	60	m.d.	Mamonova and Sulerzhitskii 1989
14	Angara Valley	Serovo	Gr. 17	GIN-4496	Serovo	4550	120	m.d.	Mamonova 1991 (pers. comm.)
15	Angara Valley	Serovo	Gr. 10	GIN-4493	Serovo	4820	60	m.d.	Mamonova and Sulerzhitskii 1989
16	Angara Valley	Serovo	Gr. 11	GIN-4494	Serovo	5170	180	m.d.	Mamonova and Sulerzhitskii 1989
17	Angara Valley	Serovo	m.d.	GIN-4492	Serovo	5230	270	m.d.	Konopatskii 1982
18	Angara Valley	Shumilikha	Gr. 5	GIN-4498	Glazkovo	3730	40	m.d.	Mamonova and Sulerzhitskii 1989
19	Angara Valley	Shumilikha	Gr. 1	GIN-4497	Glazkovo	3900	40	m.d.	Mamonova and Sulerzhitskii 1989
20	Angara Valley	Shumilikha	Gr. 18	GIN-4502	Glazkovo	4020	50	m.d.	Mamonova and Sulerzhitskii 1989
21	Angara Valley	Shumilikha	Gr. 9	GIN-4499	Glazkovo	4030	30	m.d.	Mamonova and Sulerzhitskii 1989
22	Angara Valley	Shumilikha	Gr. 29	GIN-4505	Glazkovo	4040	40	m.d.	Mamonova and Sulerzhitskii 1989
23	Angara Valley	Shumilikha	Gr. 24	GIN-4504	Glazkovo	4060	120	m.d.	Mamonova and Sulerzhitskii 1989
24	Angara Valley	Shumilikha	Gr. 23	GIN-4503	Glazkovo	4100	70	m.d.	Mamonova and Sulerzhitskii 1989
25	Angara Valley	Shumilikha	Gr. 37	GIN-4507	Glazkovo	4100	50	m.d.	Mamonova and Sulerzhitskii 1989
26	Angara Valley	Shumilikha	m.d.	GIN-4512	Glazkovo	4170	70	m.d.	Mamonova and Sulerzhitskii 1989
27	Angara Valley	Shumilikha	Gr. 40	GIN-4509	Glazkovo	4260	90	m.d.	Mamonova and Sulerzhitskii 1989
28	Angara Valley	Shumilikha	Gr. 42	GIN-4510	Glazkovo	4290	40	m.d.	Mamonova and Sulerzhitskii 1989
29	Angara Valley	Shumilikha	m.d.	GIN-4511	Glazkovo	4340	70	m.d.	Mamonova and Sulerzhitskii 1989
30	Angara Valley	Shumilikha	Gr. 12	GIN-4501	Glazkovo	4360	70	m.d.	Mamonova and Sulerzhitskii 1989
31	Angara Valley	Shumilikha	Gr. 40	GIN-4508	Glazkovo	4500	600	m.d.	Mamonova and Sulerzhitskii 1989
32	Angara Valley	Shumilikha	Gr. 32-2	GIN-4506	Glazkovo	4660	80	m.d.	Mamonova and Sulerzhitskii 1989
33	Angara Valley	Shumilikha	Gr. 10	GIN-4500	Glazkovo	4850	70	m.d.	Mamonova and Sulerzhitskii 1989

34	Angara Valley	Ust'-Belaia	Gr. 2 (1957)	GIN-4514	Glazkovo	3650	50	m.d.	Mamonova and Sulerzhitskii 1989
35	Angara Valley	Ust'-Belaia	Gr. 2	GIN-4515	Glazkovo	4120	70	m.d.	Mamonova and Sulerzhitskii 1989
36	Angara Valley	Ust'-Belaia	Gr. 1 (1953)	GIN-4513	Glazkovo	4590	70	m.d.	Mamonova and Sulerzhitskii 1989
37	Angara Valley	Ust'-Uda	Gr. 2-a	GIN-4517	Glazkovo	2980	180	m.d.	Mamonova 1991 (pers. comm.)
38	Angara Valley	Ust'-Uda	Gr. 2	GIN-4516	Glazkovo	4080	100	m.d.	Mamonova and Sulerzhitskii 1989
39	Angara Valley	V. Buret'-Svinarnik	m.d.	GIN-4518	Glazkovo	4260	130	m.d.	Mamonova and Sulerzhitskii 1989
40	Baikal Coast	Elga III	Gr. 5	GIN-6841	Serovo	4460	70	m.d.	Goriunova 1997
41	Baikal Coast	Khadarta IV	Gr. 13	SOAN-3348	Glazkovo	3645	85	m.d.	Kharinskii and Sosnovskaia 2000
42	Baikal Coast	Khadarta IV	Gr. 1	SOAN-3349	Glazkovo	3910	110	m.d.	Kharinskii and Sosnovskaia 2000
43	Baikal Coast	Kharansa I	Gr. 29	GIN-3873	Serovo	4860	40	m.d.	Mamonova and Sulerzhitskii 1989
44	Baikal Coast	Khuzhir Nuge VI	Gr. 4	GIN-5607	Serovo	4470	40	m.d.	Goriunova 1997
45	Baikal Coast	Khuzhir Nuge XIV	Gr. 59-2	TO-09407	Glazkovo	3670	50	2.2	Weber et al. 2005
46	Baikal Coast	Khuzhir Nuge XIV	Gr. 68	TO-09416	Glazkovo	3690	50	1.8	Weber et al. 2005
47	Baikal Coast	Khuzhir Nuge XIV	Gr. 12	TO-07835	Glazkovo	3700	70	1.7	Weber et al. 2005
48	Baikal Coast	Khuzhir Nuge XIV	Gr. 64	TO-11545	Glazkovo	3740	60	1.3	Weber et al. 2005
49	Baikal Coast	Khuzhir Nuge XIV	Gr. 35-2	TO-09382	Glazkovo	3770	140	4.7	Weber et al. 2005
50	Baikal Coast	Khuzhir Nuge XIV	Gr. 47	TO-09394	Glazkovo	3780	100	2	Weber et al. 2005
51	Baikal Coast	Khuzhir Nuge XIV	Gr. 79	TO-09426	Glazkovo	3830	50	1.9	Weber et al. 2005
52	Baikal Coast	Khuzhir Nuge XIV	Gr. 61	TO-09409	Glazkovo	3850	50	1.4	Weber et al. 2005
53	Baikal Coast	Khuzhir Nuge XIV	Gr. 16	TO-07836	Glazkovo	3860	60	2.5	Weber et al. 2005
54	Baikal Coast	Khuzhir Nuge XIV	Gr. 86	TO-10105	Glazkovo	3870	70	2.7	Weber et al. 2005
55	Baikal Coast	Khuzhir Nuge XIV	Gr. 40	TO-09389	Glazkovo	3870	70	3.4	Weber et al. 2005
56	Baikal Coast	Khuzhir Nuge XIV	Gr. 85	TO-10102	Glazkovo	3890	80	1.3	Weber et al. 2005
57	Baikal Coast	Khuzhir Nuge XIV	Gr. 84	TO-10104	Glazkovo	3890	70	1.4	Weber et al. 2005
58	Baikal Coast	Khuzhir Nuge XIV	Gr. 53	TO-09399	Glazkovo	3890	110	3.2	Weber et al. 2005
59	Baikal Coast	Khuzhir Nuge XIV	Gr. 75	TO-09422	Glazkovo	3900	50	4.2	Weber et al. 2005
60	Baikal Coast	Khuzhir Nuge XIV	Gr. 45	TO-11546	Glazkovo	3910	70	1.9	Weber et al. 2005
61	Baikal Coast	Khuzhir Nuge XIV	Gr. 11	TO-06864	Glazkovo	3910	60	10.3	Weber et al. 2005
62	Baikal Coast	Khuzhir Nuge XIV	Gr. 39	TO-09388	Glazkovo	3930	100	1.7	Weber et al. 2005
63	Baikal Coast	Khuzhir Nuge XIV	Gr. 60	TO-11547	Glazkovo	3940	70	8.2	Weber et al. 2005
64	Baikal Coast	Khuzhir Nuge XIV	Gr. 70	TO-09417	Glazkovo	3940	60	10.8	Weber et al. 2005
65	Baikal Coast	Khuzhir Nuge XIV	Gr. 74	TO-09421	Glazkovo	3950	60	1.2	Weber et al. 2005
66	Baikal Coast	Khuzhir Nuge XIV	Gr. 17	TO-08483	Glazkovo	3950	60	1.8	Weber et al. 2005
67	Baikal Coast	Khuzhir Nuge XIV	Gr. 15	TO-06866	Glazkovo	3960	60	1.7	Weber et al. 2005
68	Baikal Coast	Khuzhir Nuge XIV	Gr. 49	TO-09395	Glazkovo	4030	60	2.6	Weber et al. 2005

69	Baikal Coast	Khuzhir Nuge XIV	Gr. 35-1	TO-09381	Glazkovo	4030	70	4.3	Weber et al. 2005
70	Baikal Coast	Khuzhir Nuge XIV	Gr. 50	TO-09396	Glazkovo	4090	60	31.1	Weber et al. 2005
71	Baikal Coast	Khuzhir Nuge XIV	Gr. 38	TO-09387	Glazkovo	4200	90	1.1	Weber et al. 2005
72	Baikal Coast	Khuzhir Nuge XIV	Gr. 60	TO-09408	Glazkovo	4210	50	1.1	Weber et al. 2005
73	Baikal Coast	Khuzhir Nuge XIV	Gr. 80-2	TO-09428	Glazkovo	4640	180	2.8	Weber et al. 2005
74	Baikal Coast	Khuzhir Nuge XIV	Gr. 2	GIN-7523	Glazkovo	2900	200	m.d.	Weber et al. 2005
75	Baikal Coast	Khuzhir Nuge XIV	Gr. 63	TO-09412	Glazkovo	3150	70	0.5	Weber et al. 2005
76	Baikal Coast	Khuzhir Nuge XIV	Gr. 24	TO-06868	Glazkovo	3200	150	0.1	Weber et al. 2005
77	Baikal Coast	Khuzhir Nuge XIV	Gr. 77	TO-09424	Glazkovo	3450	50	1	Weber et al. 2005
78	Baikal Coast	Khuzhir Nuge XIV	Gr. 71	TO-09418	Glazkovo	3470	60	0.6	Weber et al. 2005
79	Baikal Coast	Khuzhir Nuge XIV	Gr. 26	TO-10101	Glazkovo	3490	120	0.2	Weber et al. 2005
80	Baikal Coast	Khuzhir Nuge XIV	Gr. 10	TO-07834	Glazkovo	3530	60	0.6	Weber et al. 2005
81	Baikal Coast	Khuzhir Nuge XIV	Gr. 37-2	TO-09386	Glazkovo	3540	60	0.9	Weber et al. 2005
82	Baikal Coast	Khuzhir Nuge XIV	Gr. 54	TO-09400	Glazkovo	3570	530	0.2	Weber et al. 2005
83	Baikal Coast	Khuzhir Nuge XIV	Gr. 21	TO-08484	Glazkovo	3580	110	0.3	Weber et al. 2005
84	Baikal Coast	Khuzhir Nuge XIV	Gr. 14	TO-06865	Glazkovo	3580	60	0.7	Weber et al. 2005
85	Baikal Coast	Khuzhir Nuge XIV	Gr. 63	TO-11540	Glazkovo	3600	70	0.4	Weber et al. 2005
86	Baikal Coast	Khuzhir Nuge XIV	Gr. 34	TO-09380	Glazkovo	3610	70	0.6	Weber et al. 2005
87	Baikal Coast	Khuzhir Nuge XIV	Gr. 83	TO-10100	Glazkovo	3630	60	0.5	Weber et al. 2005
88	Baikal Coast	Khuzhir Nuge XIV	Gr. 48	TO-09429	Glazkovo	3650	50	1	Weber et al. 2005
89	Baikal Coast	Khuzhir Nuge XIV	Gr. 59-1	TO-09406	Glazkovo	3700	90	1	Weber et al. 2005
90	Baikal Coast	Khuzhir Nuge XIV	Gr. 81	TO-10107	Glazkovo	3710	110	0.2	Weber et al. 2005
91	Baikal Coast	Khuzhir Nuge XIV	Gr. 57-1	TO-09402	Glazkovo	3740	140	0.5	Weber et al. 2005
92	Baikal Coast	Khuzhir Nuge XIV	Gr. 1	TO-10097	Glazkovo	3740	60	0.7	Weber et al. 2005
93	Baikal Coast	Khuzhir Nuge XIV	Gr. 23	TO-07838	Glazkovo	3760	80	0.2	Weber et al. 2005
94	Baikal Coast	Khuzhir Nuge XIV	Gr. 62-1	TO-09410R	Glazkovo	3800	60	0.3	Weber et al. 2005
95	Baikal Coast	Khuzhir Nuge XIV	Gr. 87	TO-10106	Glazkovo	3820	80	0.5	Weber et al. 2005
96	Baikal Coast	Khuzhir Nuge XIV	Gr. 66	TO-09415	Glazkovo	3820	50	0.9	Weber et al. 2005
97	Baikal Coast	Khuzhir Nuge XIV	Gr. 58-2	TO-09405	Glazkovo	3870	50	0.8	Weber et al. 2005
98	Baikal Coast	Khuzhir Nuge XIV	Gr. 82	TO-10103	Glazkovo	3880	150	0.6	Weber et al. 2005
99	Baikal Coast	Khuzhir Nuge XIV	Gr. 4	GIN-7522	Glazkovo	3910	60	m.d.	Weber et al. 2005
100	Baikal Coast	Khuzhir Nuge XIV	Gr. 36-2	TO-09384	Glazkovo	3910	140	0.5	Weber et al. 2005
101	Baikal Coast	Khuzhir Nuge XIV	Gr. 5	TO-10098	Glazkovo	3910	60	0.7	Weber et al. 2005
102	Baikal Coast	Khuzhir Nuge XIV	Gr. 58-1	TO-09404	Glazkovo	3910	80	0.7	Weber et al. 2005
103	Baikal Coast	Khuzhir Nuge XIV	Gr. 46	TO-9393R	Glazkovo	3920	70	0.4	Weber et al. 2005

104	Baikal Coast	Khuzhir Nuge XIV	Gr. 22	TO-06867	Glazkovo	3920	70	0.7	Weber et al. 2005
105	Baikal Coast	Khuzhir Nuge XIV	Gr. 36-1	TO-09383	Glazkovo	3930	90	0.2	Weber et al. 2005
106	Baikal Coast	Khuzhir Nuge XIV	Gr. 9	TO-06863	Glazkovo	3940	70	0.3	Weber et al. 2005
107	Baikal Coast	Khuzhir Nuge XIV	Gr. 65	TO-11548	Glazkovo	3940	70	0.3	Weber et al. 2005
108	Baikal Coast	Khuzhir Nuge XIV	Gr. 51	TO-09397	Glazkovo	3950	150	0.3	Weber et al. 2005
109	Baikal Coast	Khuzhir Nuge XIV	Gr. 78	TO-09425	Glazkovo	4040	60	0.2	Weber et al. 2005
110	Baikal Coast	Khuzhir Nuge XIV	Gr. 73	TO-09420	Glazkovo	4040	90	0.5	Weber et al. 2005
111	Baikal Coast	Khuzhir Nuge XIV	Gr. 27-1	TO-08485	Glazkovo	4060	120	0.7	Weber et al. 2005
112	Baikal Coast	Khuzhir Nuge XIV	Gr. 57-2	TO-09403	Glazkovo	4080	550	0.1	Weber et al. 2005
113	Baikal Coast	Khuzhir Nuge XIV	Gr. 27-3	TO-09377	Glazkovo	4080	70	0.7	Weber et al. 2005
114	Baikal Coast	Khuzhir Nuge XIV	Gr. 64	TO-09413	Glazkovo	4110	110	0.2	Weber et al. 2005
115	Baikal Coast	Khuzhir Nuge XIV	Gr. 44	TO-09391	Glazkovo	4120	180	0.3	Weber et al. 2005
116	Baikal Coast	Khuzhir Nuge XIV	Gr. 76	TO-09423	Glazkovo	4120	110	0.3	Weber et al. 2005
117	Baikal Coast	Khuzhir Nuge XIV	Gr. 37-1	TO-10108	Glazkovo	4120	70	0.5	Weber et al. 2005
118	Baikal Coast	Khuzhir Nuge XIV	Gr. 37-1	TO-11544	Glazkovo	4160	70	0.4	Weber et al. 2005
119	Baikal Coast	Khuzhir Nuge XIV	Gr. 29	TO-08487	Glazkovo	4230	80	0.4	Weber et al. 2005
120	Baikal Coast	Khuzhir Nuge XIV	Gr. 27-2	TO-09376	Glazkovo	4240	170	0.4	Weber et al. 2005
121	Baikal Coast	Khuzhir Nuge XIV	Gr. 46	TO-09393	Glazkovo	4260	110	0.3	Weber et al. 2005
122	Baikal Coast	Khuzhir Nuge XIV	Gr. 19	TO-07837	Glazkovo	4300	60	0.7	Weber et al. 2005
123	Baikal Coast	Khuzhir Nuge XIV	Gr. 26	TO-11543	Glazkovo	4320	70	0.7	Weber et al. 2005
124	Baikal Coast	Khuzhir Nuge XIV	Gr. 25	TO-09375R	Glazkovo	4330	470	0.13	Weber et al. 2005
125	Baikal Coast	Khuzhir Nuge XIV	Gr. 72	TO-09419	Glazkovo	4410	90	0.2	Weber et al. 2005
126	Baikal Coast	Khuzhir Nuge XIV	Gr. 55	TO-09401	Glazkovo	4540	150	0.4	Weber et al. 2005
127	Baikal Coast	Khuzhir Nuge XIV	Gr. 80-1	TO-09427	Glazkovo	4580	180	0.5	Weber et al. 2005
128	Baikal Coast	Khuzhir Nuge XIV	Gr. 65	TO-09414	Glazkovo	4630	110	0.2	Weber et al. 2005
129	Baikal Coast	Khuzhir Nuge XIV	Gr. 31	TO-09378	Glazkovo	4700	70	0.2	Weber et al. 2005
130	Baikal Coast	Khuzhir Nuge XIV	Gr. 45	TO-09392	Glazkovo	4820	90	0.2	Weber et al. 2005
131	Baikal Coast	Khuzhir Nuge XIV	Gr. 7	TO-06862	Serovo	5110	270	0.04	Weber et al. 2005
132	Baikal Coast	Kulgana	Gr. 1(1977)	GIN-4094	Glazkovo	4050	100	m.d.	Mamonova and Sulerzhitskii 1989
133	Baikal Coast	Kurma XI	Gr. 6	TO-10997	Glazkovo	3960	60	2.4	Baikal Archaeology Project
134	Baikal Coast	Kurma XI	Gr. 7-1	TO-10992	Glazkovo	4010	60	1.2	Baikal Archaeology Project
135	Baikal Coast	Kurma XI	Gr. 19	TO-11678	Glazkovo	4010	60	3	Baikal Archaeology Project
136	Baikal Coast	Kurma XI	Gr. 13	TO-10999	Glazkovo	4030	60	2.5	Baikal Archaeology Project
137	Baikal Coast	Kurma XI	Gr. 5	TO-11003	Glazkovo	4030	60	4.7	Baikal Archaeology Project
138	Baikal Coast	Kurma XI	Gr. 10	TO-10994	Glazkovo	4050	60	5.4	Baikal Archaeology Project

139	Baikal Coast	Kurma XI	Gr. 4	TO-10998	Glazkovo	4140	60	6.2	Baikal Archaeology Project
140	Baikal Coast	Kurma XI	Gr. 14	TO-10993	Glazkovo	4190	60	3.1	Baikal Archaeology Project
141	Baikal Coast	Kurma XI	Gr. 16	TO-11004	Glazkovo	4240	60	1.1	Baikal Archaeology Project
142	Baikal Coast	Kurma XI	Gr. 26	TO-11683	Glazkovo	4240	60	4	Baikal Archaeology Project
143	Baikal Coast	Kurma XI	Gr. 18	TO-11677	Glazkovo	4260	60	1.1	Baikal Archaeology Project
144	Baikal Coast	Kurma XI	Gr. 15	TO-11002	Glazkovo	4340	60	5.1	Baikal Archaeology Project
145	Baikal Coast	Kurma XI	Gr. 7-2	TO-10995	Glazkovo	4360	70	2.2	Baikal Archaeology Project
146	Baikal Coast	Kurma XI	Gr. 9	TO-11005	Glazkovo	3630	50	0.6	Baikal Archaeology Project
147	Baikal Coast	Kurma XI	Gr. 1	TO-10996	Glazkovo	3990	70	0.7	Baikal Archaeology Project
148	Baikal Coast	Kurma XI	Gr. 3	TO-11001	Glazkovo	4020	50	0.8	Baikal Archaeology Project
149	Baikal Coast	Kurma XI	Gr. 12	TO-11000	Glazkovo	4060	100	0.2	Baikal Archaeology Project
150	Baikal Coast	Kurma XI	Gr. 25	TO-11684	Glazkovo	4170	60	0.6	Baikal Archaeology Project
151	Baikal Coast	Sarminskii Mys	Gr. 11A	GIN-6842	Serovo	3300	150	m.d.	Goriunova 1997
152	Baikal Coast	Sarminskii Mys	Gr. 8	GIN-5839	Serovo	3370	80	m.d.	Goriunova 1997
153	Baikal Coast	Sarminskii Mys	Gr. 10	GIN-6844	Glazkovo	3710	50	m.d.	Goriunova 2002
154	Baikal Coast	Sarminskii Mys	Gr. 29	GIN-5602	Serovo	3840	290	m.d.	Goriunova 1997
155	Baikal Coast	Sarminskii Mys	Gr. 12	GIN-5605	Glazkovo	3960	50	m.d.	Goriunova 2002
156	Baikal Coast	Sarminskii Mys	Gr. 21	SOAN-3766	Glazkovo	4140	55	m.d.	Goriunova 2002
157	Baikal Coast	Sarminskii Mys	Gr. 33	SOAN-3767	Glazkovo	4240	120	m.d.	Goriunova 2002
158	Baikal Coast	Sarminskii Mys	Gr. 19	GIN-5600	Serovo	4410	100	m.d.	Goriunova 1997
159	Baikal Coast	Sarminskii Mys	Gr. 13	SOAN-3765	Glazkovo	4740	70	m.d.	Goriunova 2002
160	Baikal Coast	Sarminskii Mys	Gr. 22	SOAN-3764	Serovo	4970	190	m.d.	Goriunova 1997
161	Baikal Coast	Sarminskii Mys	Gr. 29	GIN-6843	Serovo	5220	140	m.d.	Goriunova 1997
162	Baikal Coast	Sarminskii Mys	Gr. 11B	GIN-5599	Serovo	5500	400	m.d.	Goriunova 1997
163	Baikal Coast	Shamanka II	Gr. 9	GIN-11230	Glazkovo	3520	60	m.d.	Turkin and Kharinskii 2004
164	Baikal Coast	Shamanka II	Gr. 5	GIN-11229	Glazkovo	3600	70	m.d.	Turkin and Kharinskii 2004
165	Baikal Coast	Shamanka II	Gr. 3	SOAN-5165	Glazkovo	3890	45	m.d.	Turkin and Kharinskii 2004
166	Baikal Coast	Shamanka II	Gr. 2	SOAN-3895	Glazkovo	3900	130	m.d.	Turkin and Kharinskii 2004
167	Baikal Coast	Shamanskii Mys	Gr. 2 (1793)	TO-10984	Glazkovo	3990	50	1.3	Baikal Archaeology Project
168	Baikal Coast	Shamanskii Mys	Gr. 3 (1973)	TO-10986	Glazkovo	4080	50	4.9	Baikal Archaeology Project
169	Baikal Coast	Shamanskii Mys	Gr. 2 (1972)	TO-10979	Glazkovo	4150	60	5.9	Baikal Archaeology Project
170	Baikal Coast	Shamanskii Mys	Gr. 4 (1973)	TO-10987	Glazkovo	4150	50	0.8	Baikal Archaeology Project
171	Baikal Coast	Shamanskii Mys	Gr. 1 (1972)	TO-10980	Glazkovo	4220	60	10.4	Baikal Archaeology Project
172	Baikal Coast	Shamanskii Mys	Gr. 1 (1973)	TO-10983	Glazkovo	4240	60	6.1	Baikal Archaeology Project
173	Baikal Coast	Shamanskii Mys	Gr. 1 (1976)	TO-10988	Serovo	4780	60	1.7	Baikal Archaeology Project

174	Baikal Coast	Shrakshura II	Gr. 2	GIN-5606	Serovo	2900	300	m.d.	Goriunova 1997
175	Baikal Coast	Sokhter IX	m.d.	SOAN-3347	Glazkovo	4425	60	m.d.	Kharinskii and Sosnovskaia 2000
176	Baikal Coast	Uliarba I	Gr. 3	GIN-4483	Glazkovo	3840	50	m.d.	Mamonova and Sulerzhitskii 1989
177	Baikal Coast	Uliarba I	Gr. 16	GIN-4484	Glazkovo	4290	80	m.d.	Mamonova and Sulerzhitskii 1989
178	Baikal Coast	Uliarba II	Gr. 3	GIN-4481	Glazkovo	3850	100	m.d.	Mamonova and Sulerzhitskii 1989
179	Baikal Coast	Uliarba II	Gr. 13-1	GIN-4475	Glazkovo	3890	40	m.d.	Mamonova and Sulerzhitskii 1989
180	Upper Lena Valley	Borki	Gr. 1 (1971)	GIN-4104	Glazkovo	3920	100	m.d.	Mamonova and Sulerzhitskii 1989
181	Upper Lena Valley	Khaptsagai	Gr. 1 (1983)	GIN-4369	Glazkovo	4030	100	m.d.	Mamonova and Sulerzhitskii 1989
182	Upper Lena Valley	Korkino	Gr. 1-2 (1983)	GIN-4367	Serovo	5250	130	m.d.	Mamonova and Sulerzhitskii 1989
183	Upper Lena Valley	Makrushina	Gr. 13	GIN-7766	Glazkovo	4200	40	m.d.	Vetrov and Berdnikova 1995
184	Upper Lena Valley	Makrushina	Gr. 14	GIN-7767	Glazkovo	4310	40	m.d.	Vetrov and Berdnikova 1995
185	Upper Lena Valley	Makrushina	Gr. 3	TO-4819	Glazkovo	4430	60	m.d.	Baikal Archaeology Project
186	Upper Lena Valley	Mys Nikol'skii	Gr. 2-1 (1982)	GIN-4371	Serovo	4940	70	m.d.	Mamonova and Sulerzhitskii 1989
187	Upper Lena Valley	Obkhoi	Gr. 4 (1971)	GIN-4106	Glazkovo	3760	40	m.d.	Mamonova and Sulerzhitskii 1989
188	Upper Lena Valley	Obkhoi	Gr. 1 (1976)	GIN-4096	Glazkovo	3790	50	m.d.	Mamonova and Sulerzhitskii 1989
189	Upper Lena Valley	Obkhoi	Gr. 3 (1971)	GIN-4103	Glazkovo	3880	50	m.d.	Mamonova and Sulerzhitskii 1989
190	Upper Lena Valley	Obkhoi	Gr. 4 (1971)	GIN-4101	Glazkovo	3980	60	m.d.	Mamonova and Sulerzhitskii 1989
191	Upper Lena Valley	Obkhoi	Gr. 7 (1971)	GIN-4121	Glazkovo	4180	50	m.d.	Mamonova and Sulerzhitskii 1989
192	Upper Lena Valley	Obkhoi	Gr. 3 (1973)	GIN-4120	Glazkovo	4280	50	m.d.	Mamonova and Sulerzhitskii 1989
193	Upper Lena Valley	Obkhoi	Gr. 13 (1971)	GIN-4122	Glazkovo	4360	50	m.d.	Mamonova and Sulerzhitskii 1989
194	Upper Lena Valley	Obkhoi	Gr. 1-2 (1971)	GIN-4123	Glazkovo	4430	50	m.d.	Mamonova and Sulerzhitskii 1989
195	Upper Lena Valley	Stepnoe Kartukhai	m.d.	GIN-4124	Glazkovo	3980	80	m.d.	Mamonova and Sulerzhitskii 1989
196	Upper Lena Valley	Ust'-Iamnoe	Gr. 4 (1978)	GIN-4556	Glazkovo	3390	60	m.d.	Mamonova and Sulerzhitskii 1989
197	Upper Lena Valley	Ust'-Iamnoe	Gr. 2 (1977)	GIN-3882	Glazkovo	3640	140	m.d.	Mamonova and Sulerzhitskii 1989
198	Upper Lena Valley	Ust'-Iamnoe	Gr. 3 (1978)	GIN-4555	Glazkovo	3690	90	m.d.	Mamonova and Sulerzhitskii 1989
199	Upper Lena Valley	Ust'-Iamnoe	Gr. 6 (1982)	GIN-4368	Glazkovo	3910	100	m.d.	Mamonova and Sulerzhitskii 1989
200	Upper Lena Valley	Verkholensk	Gr. 22	GIN-4801	Glazkovo	3080	70	m.d.	Mamonova 1991 (pers. comm.)
201	Upper Lena Valley	Verkholensk	Gr. 20	GIN-4804	Glazkovo	3320	100	m.d.	Mamonova 1991 (pers. comm.)
202	Upper Lena Valley	Verkholensk	Gr. 30-2	GIN-4441	Serovo	3340	100	m.d.	Mamonova and Sulerzhitskii 1989
203	Upper Lena Valley	Verkholensk	Gr. 24-2	GIN-4806	Glazkovo	3920	70	m.d.	Mamonova 1991 (pers. comm.)
204	Upper Lena Valley	Verkholensk	Gr. 14	GIN-4444	Serovo	4390	80	m.d.	Mamonova and Sulerzhitskii 1989
205	Upper Lena Valley	Verkholensk	Gr. 32-2 (b)	GIN-4812	Serovo	4430	120	m.d.	Mamonova 1991 (pers. comm.)
206	Upper Lena Valley	Verkholensk	Gr. 37	GIN-4820	Serovo	4540	150	m.d.	Mamonova 1991 (pers. comm.)
207	Upper Lena Valley	Verkholensk	Gr. 11	GIN-4445	Serovo	4650	50	m.d.	Mamonova and Sulerzhitskii 1989
208	Upper Lena Valley	Verkholensk	Gr. 30-3	GIN-4460	Serovo	4810	100	m.d.	Mamonova and Sulerzhitskii 1989
209	Upper Lena Valley	Verkholensk	Gr. 18	GIN-4807	Serovo	5260	160	m.d.	Mamonova 1991 (pers. comm.)
210	Upper Lena Valley	Verkholensk	Gr. 30-1	GIN-4814	Serovo	5270	100	m.d.	Mamonova 1991 (pers. comm.)

Figures

Figure 1 Map of the Cis-Baikal Region of Siberia, Russia.

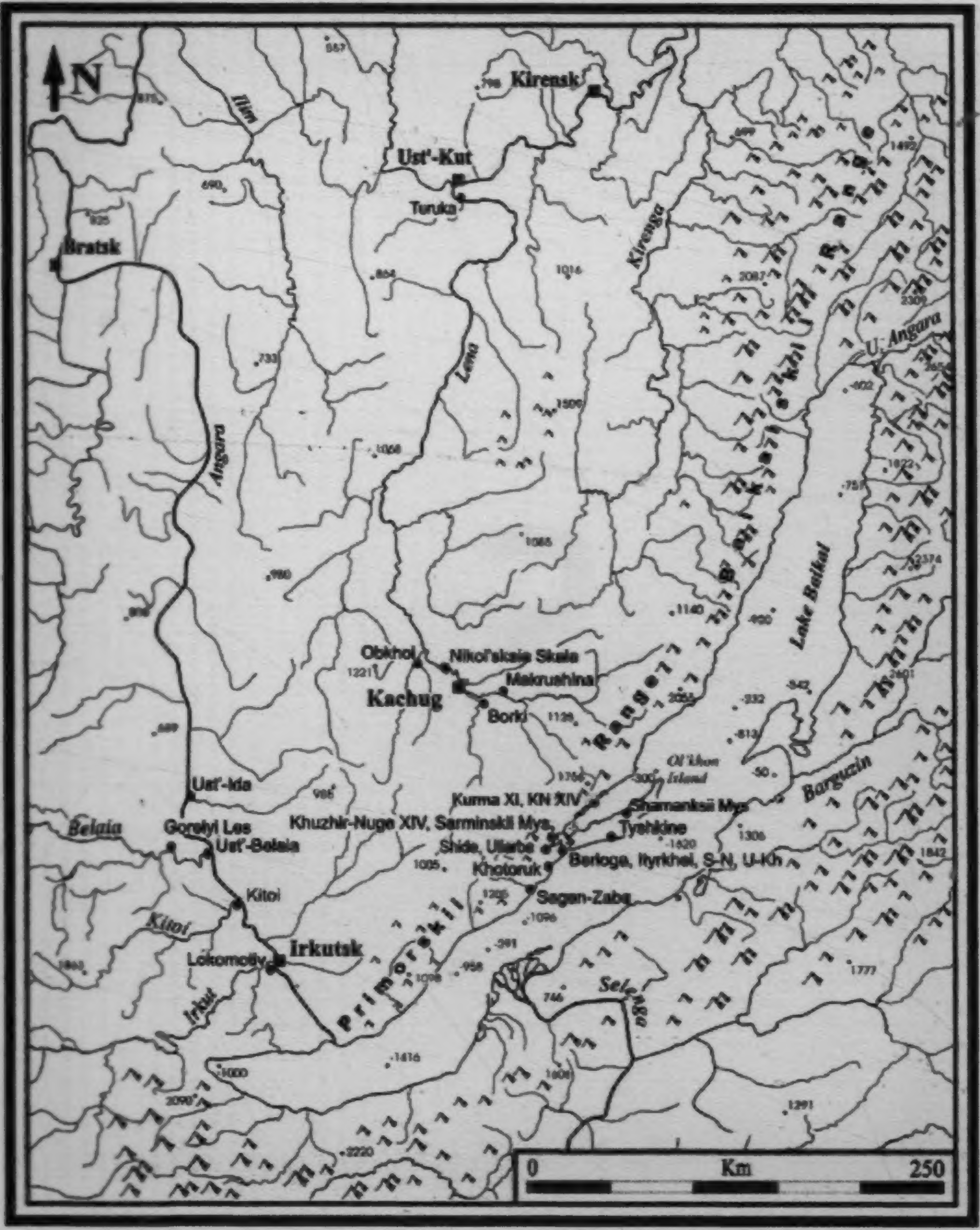

N
Kirensk
Ust'-Kut
Turuka
Bratsk
Ilim
Lena
Kirenga
Angara
U. Angara
Lake Baikal
Baikal Range
Primorskii Range
Obkhoi
Nikol'skaia Skala
Makrushina
Kachug
Borki
Ust'-Ida
Belaia
Gorelyi Les
Ust'-Belaia
Kitoi
Irkutsk
Lokomotiv
Irkut
Kurma XI, KN XIV
Khuzhir-Nuge XIV, Sarminskii Mys,
Shide, Ularba
Khotoruk
Sagan-Zaba
Shamanksii Mys
Tyshkine
Berloga, Ityrkhei, S-N, U-Kh
Ol'khon Island
Barguzin
Selenga
1221
1140
1139
1756
1005
1096
2220
2090
1777
1291
1842
2374
0
Km
250

Figure 2 Map of the Little Sea region, Lake Baikal, Siberia, Russia.

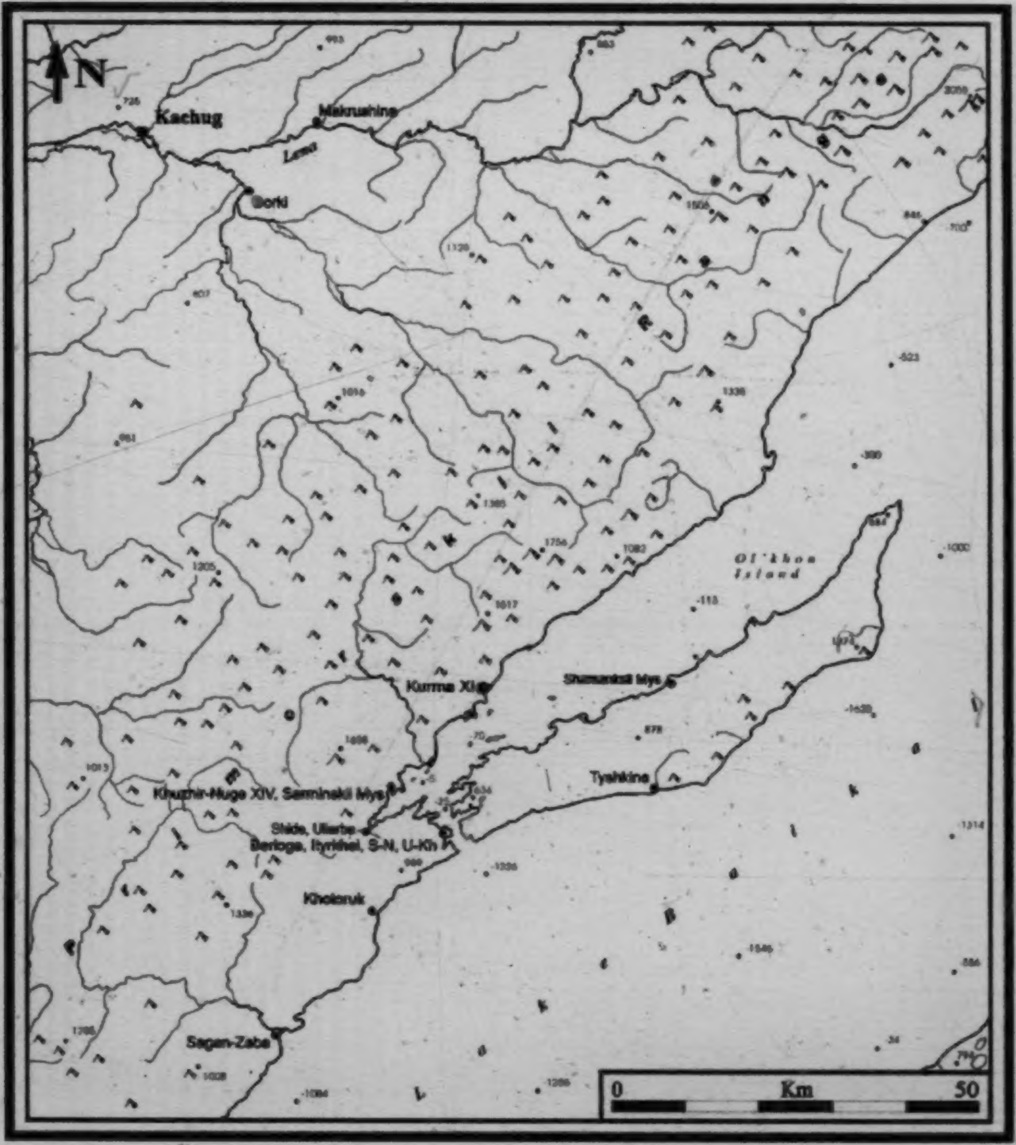
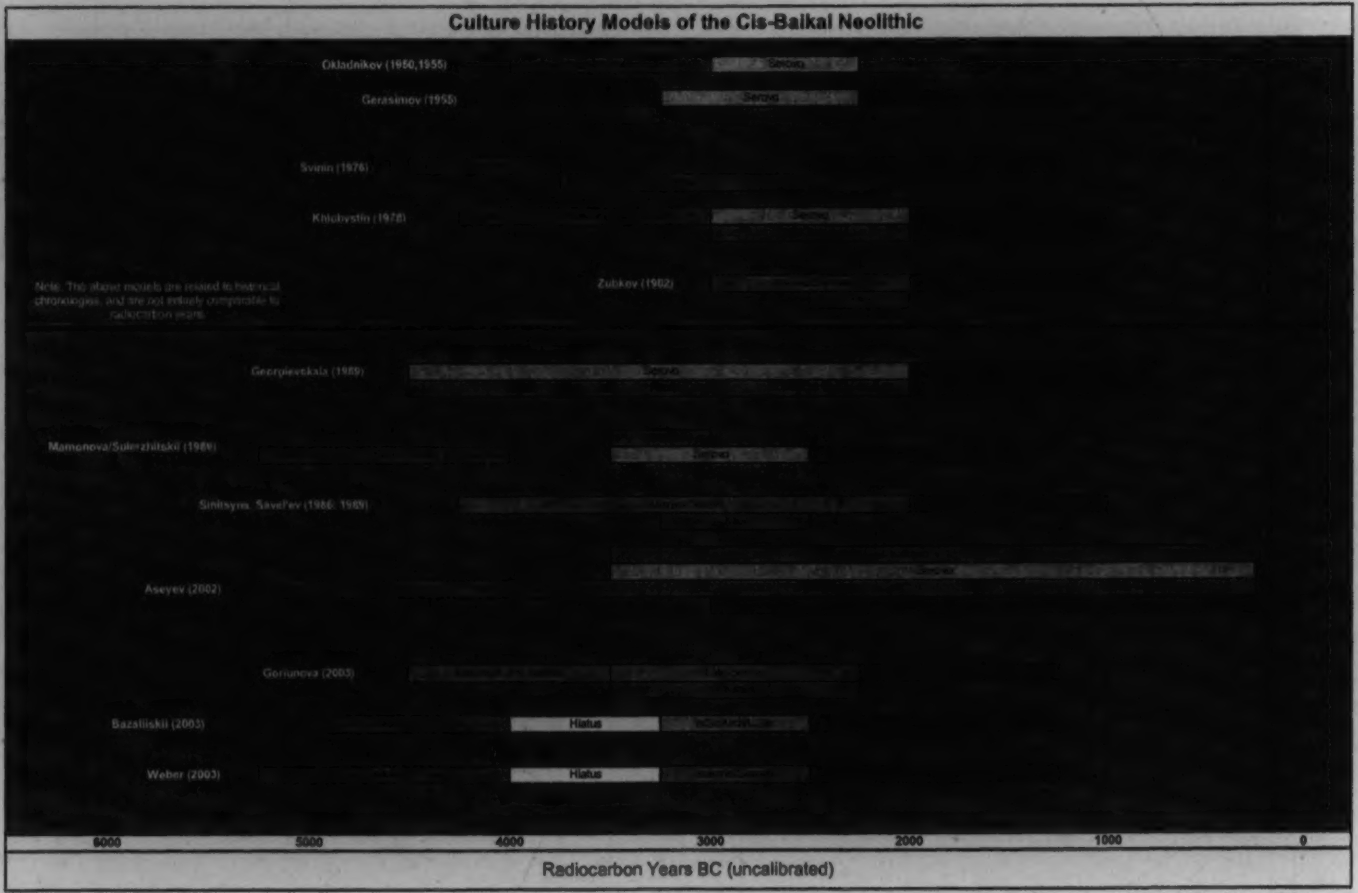

N
Kachug
Makrushino
Lena
Borki
Ol'khon Island
Kurma XI
Shamanskii Mys
Khuzhir-Nuge XIV, Sarminskii Mys
Shide, Ularba
Bertoga, Ityrkhei, S-N, U-Kh
Tyshkino
Kholoruk
Sagan-Zaba
0
Km
50

Figure 3 Culture history models of the Cis-Baikal Middle Holocene.



(After Weber 1995, and Aseyev 2002)

Figure 4 Kurma XI site plan.

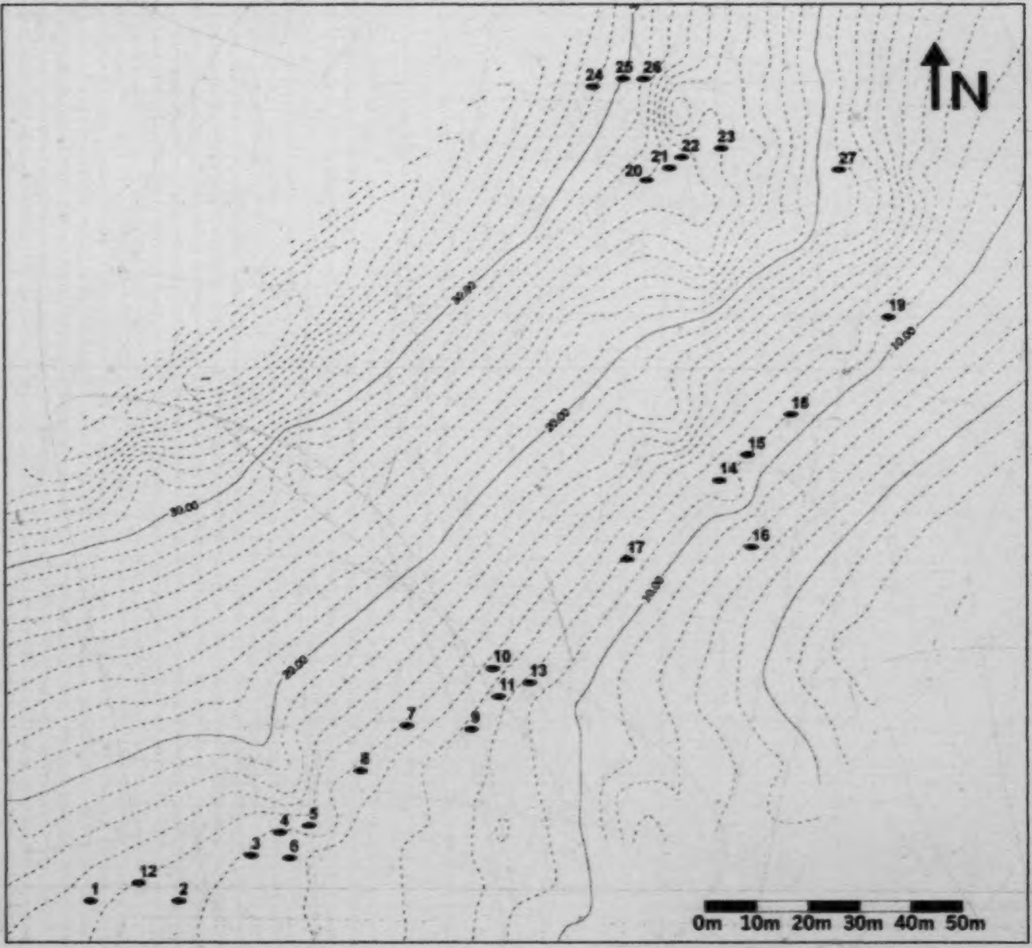

N
24
25
26
23
22
21
20
27
30.00
19
10.00
18
20.00
15
14
30.00
17
16
10.00
10
13
11
20.00
7
9
8
5
4
3
6
12
1
2
0m 10m 20m 30m 40m 50m

Figure 5 Temporal distribution of Kurma XI radiocarbon dates according to collagen yield.

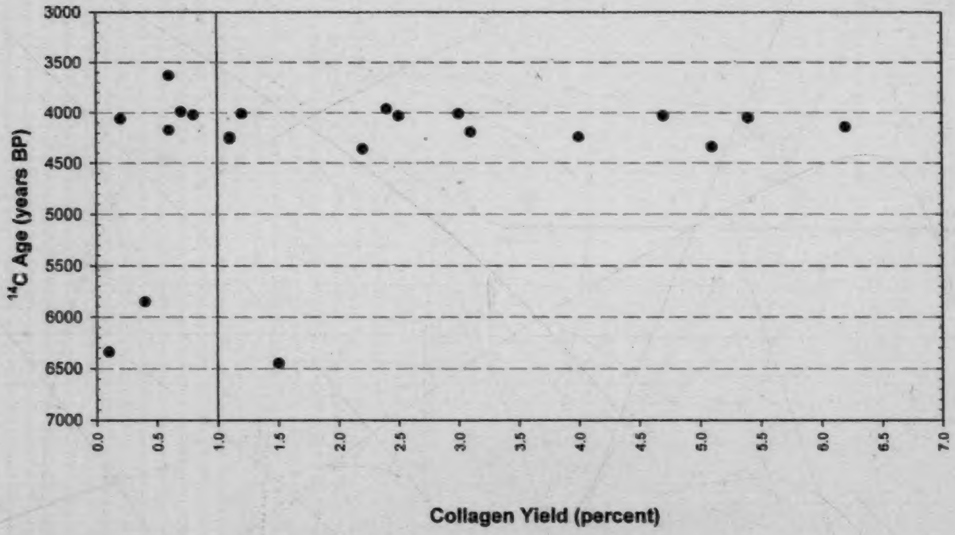


Figure 6 Kurma XI radiocarbon dates, according to collagen yield.

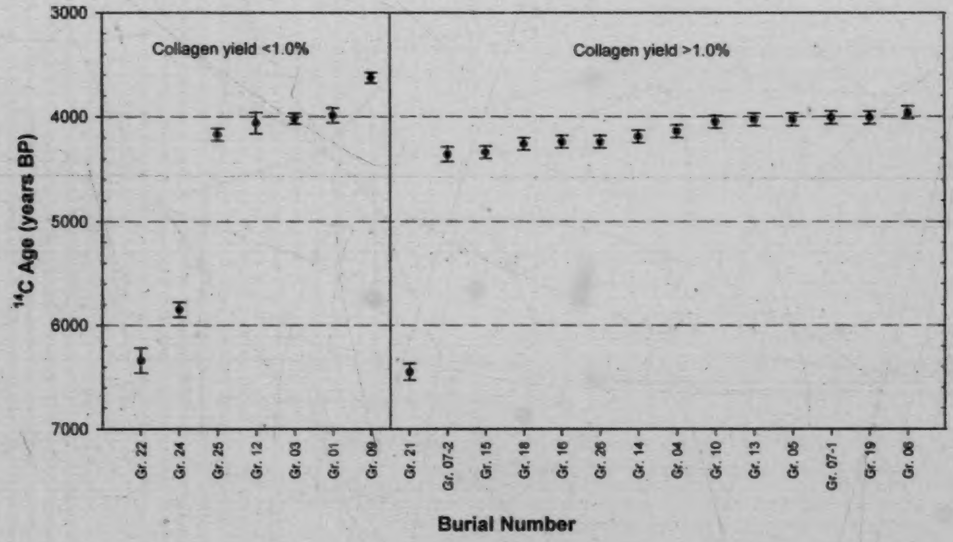


Figure 7 Kurma XI Grave 7, burial level (Photo: A. Weber).

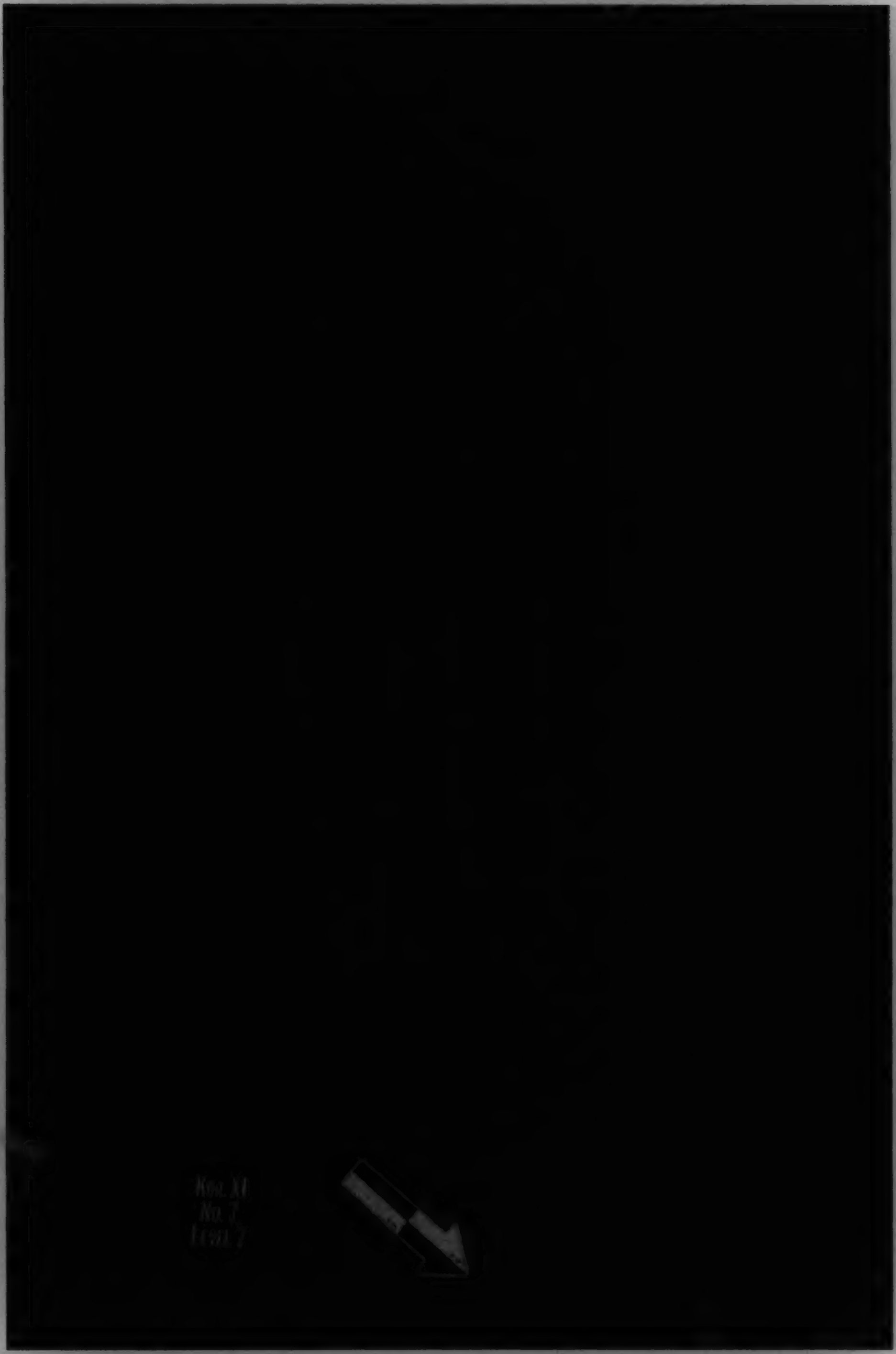
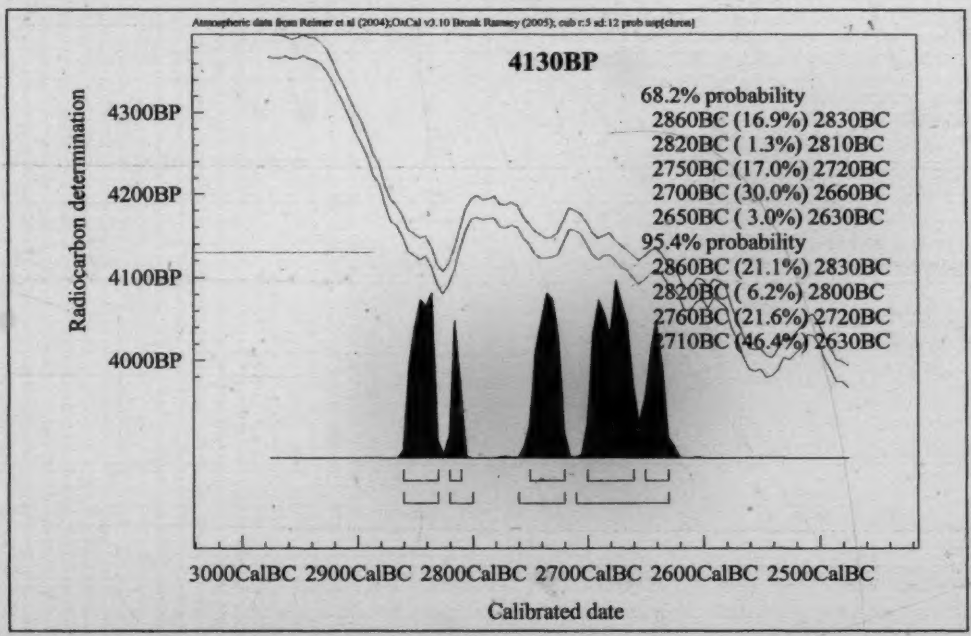

Kur. XI
No. 7
Level 7

Figure 8 Radiocarbon calibration curve for 4130 BP.



9

Figure 9 Kurma XI site, Little Sea region, Siberia, Russia. View from southeast.

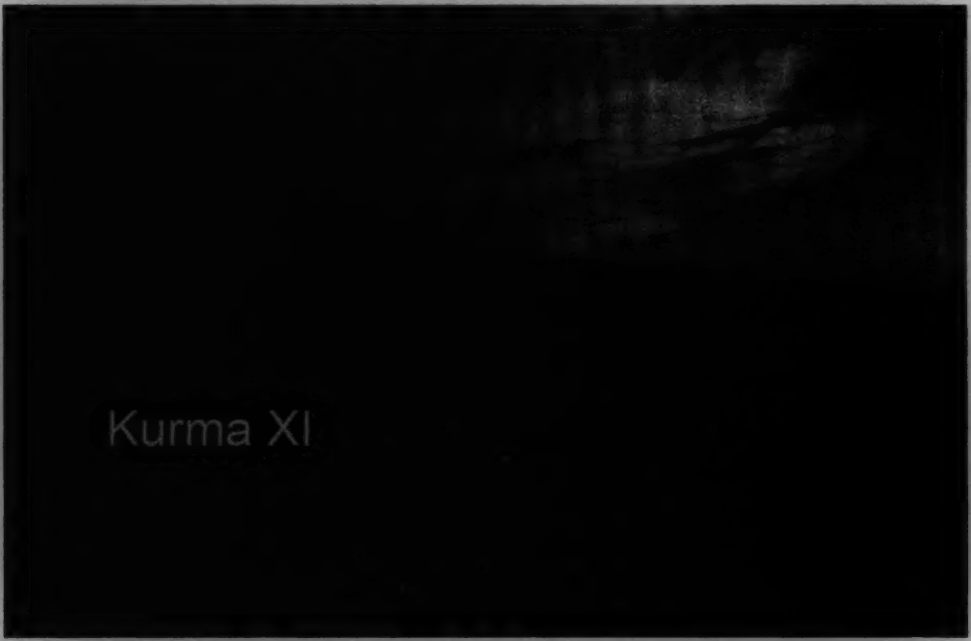


Figure 10 Demographic profile of Glazkovo component of Kurma XI.

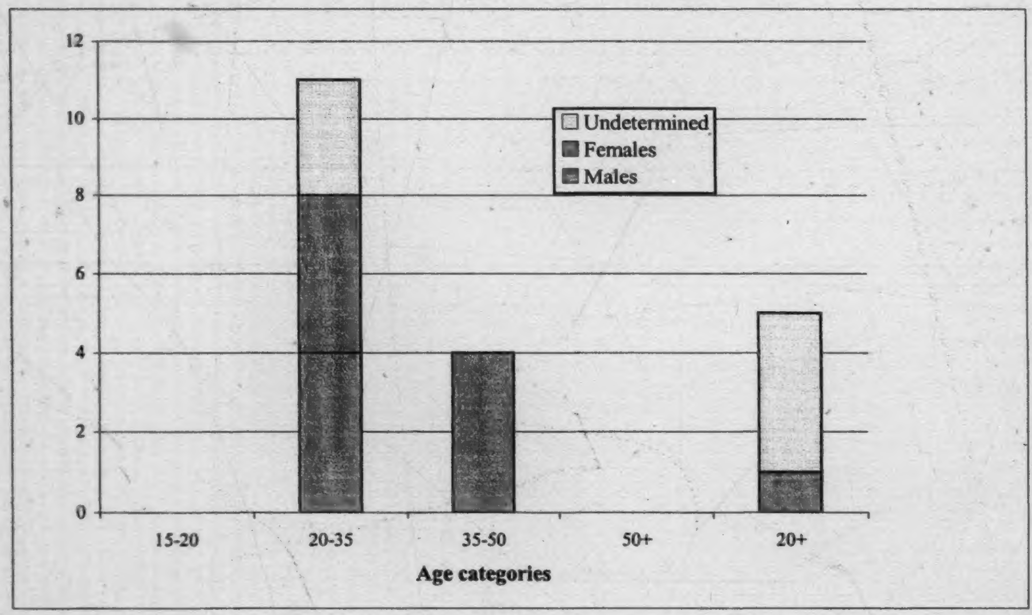


Figure 11 Spatial locations of burials at Kurma XI, according to sex.

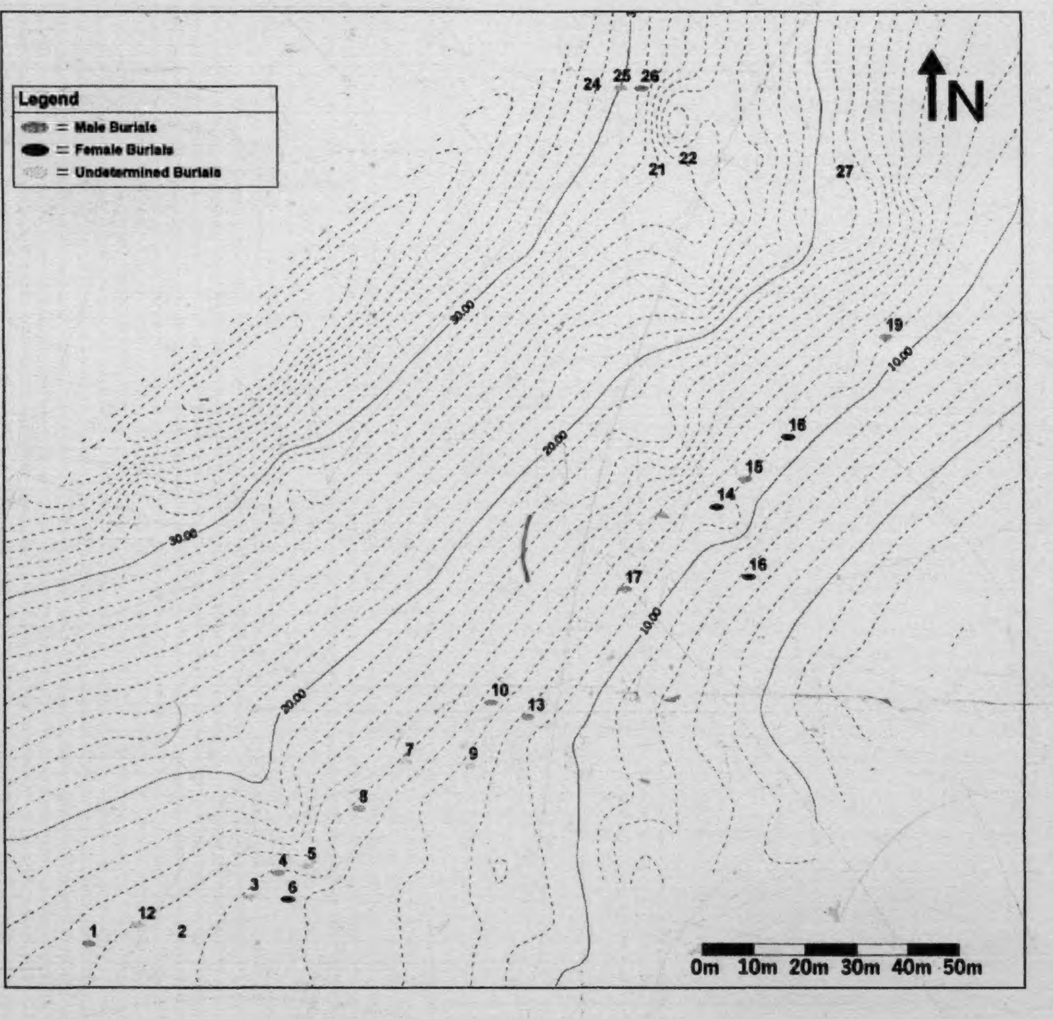

Legend
= Male Burials
= Female Burials
= Undetermined Burials
N
24
25
26
21
22
27
30.00
20.00
10.00
19
18
15
14
16
17
10
13
7
9
8
5
4
3
6
12
1
2
0m 10m 20m 30m 40m 50m

Figure 12 Spatial locations of burials at Kurma XI, according to age.

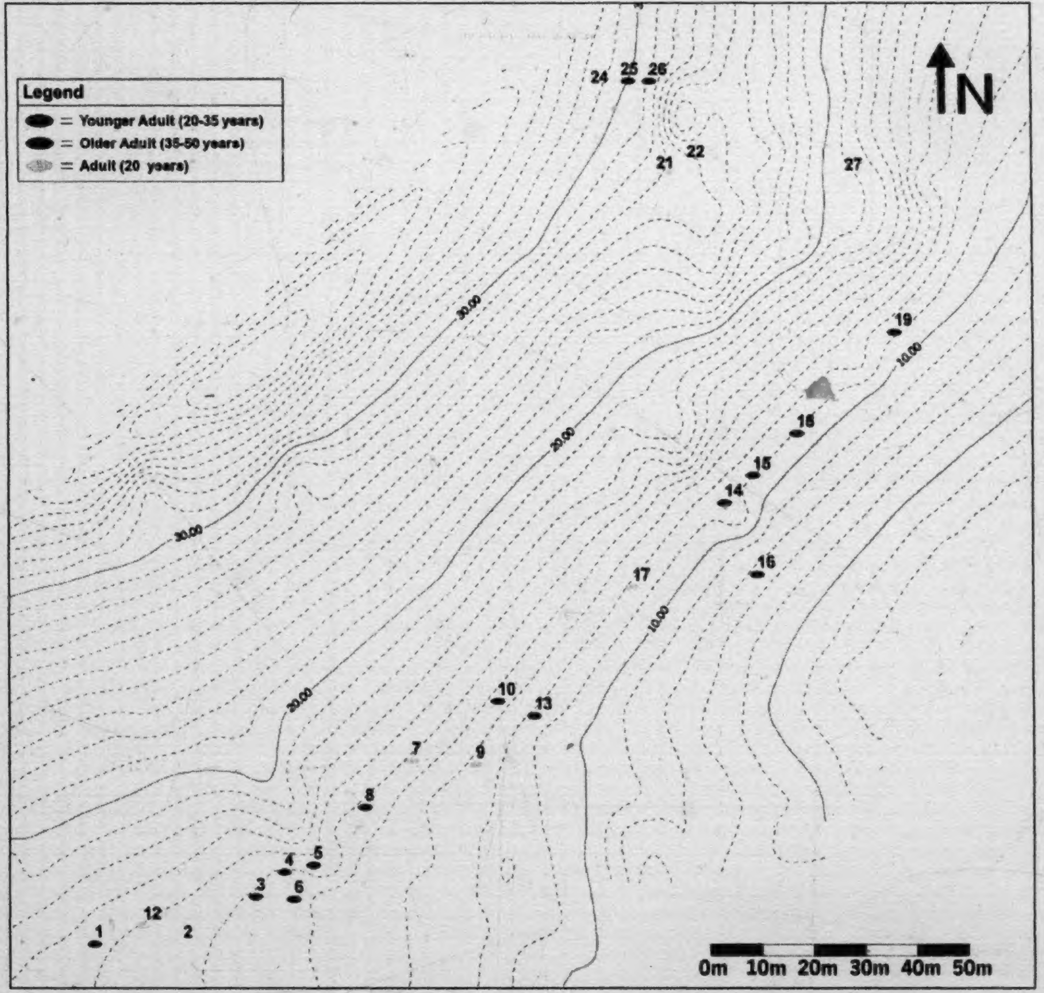

N
Legend
= Younger Adult (20-35 years)
= Older Adult (35-50 years)
= Adult (20 years)
24
25
26
21
22
27
30.00
30.00
20.00
20.00
10.00
10.00
19
18
15
14
16
17
10
13
7
9
8
5
4
3
6
12
1
2
0m 10m 20m 30m 40m 50m

Figure 13 Spatial clusters of graves at Kurma XI.

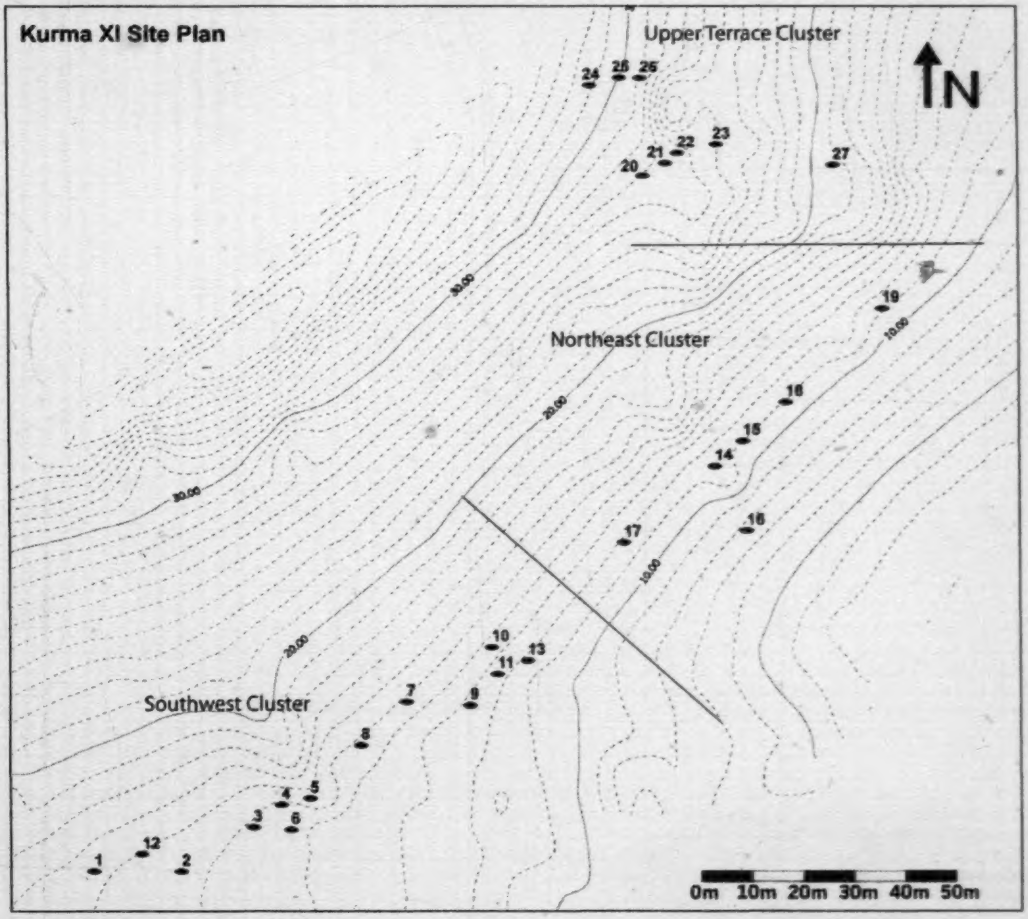

Kurma XI Site Plan
Upper Terrace Cluster
N
24
25
26
20
21
22
23
27
30.00
Northeast Cluster
19
10.00
20.00
18
15
14
30.00
17
16
10.00
20.00
10
13
11
Southwest Cluster
7
9
8
4
5
3
6
12
1
2
0m 10m 20m 30m 40m 50m

Figure 14 Example of a ring-shaped surface arrangement of paving stones at Kurma XI (Grave 1) (Photo: A. Weber).

Figure 15 Example of a compact surface arrangement of paving stones at Kurma XI (Grave 10) (Photo: A. Weber).

Figure 16 Kurma XI Grave 26, burial level (Photo: A. Weber).

Figure 17 Spatial locations of graves according to grave type (exposed or sealed).

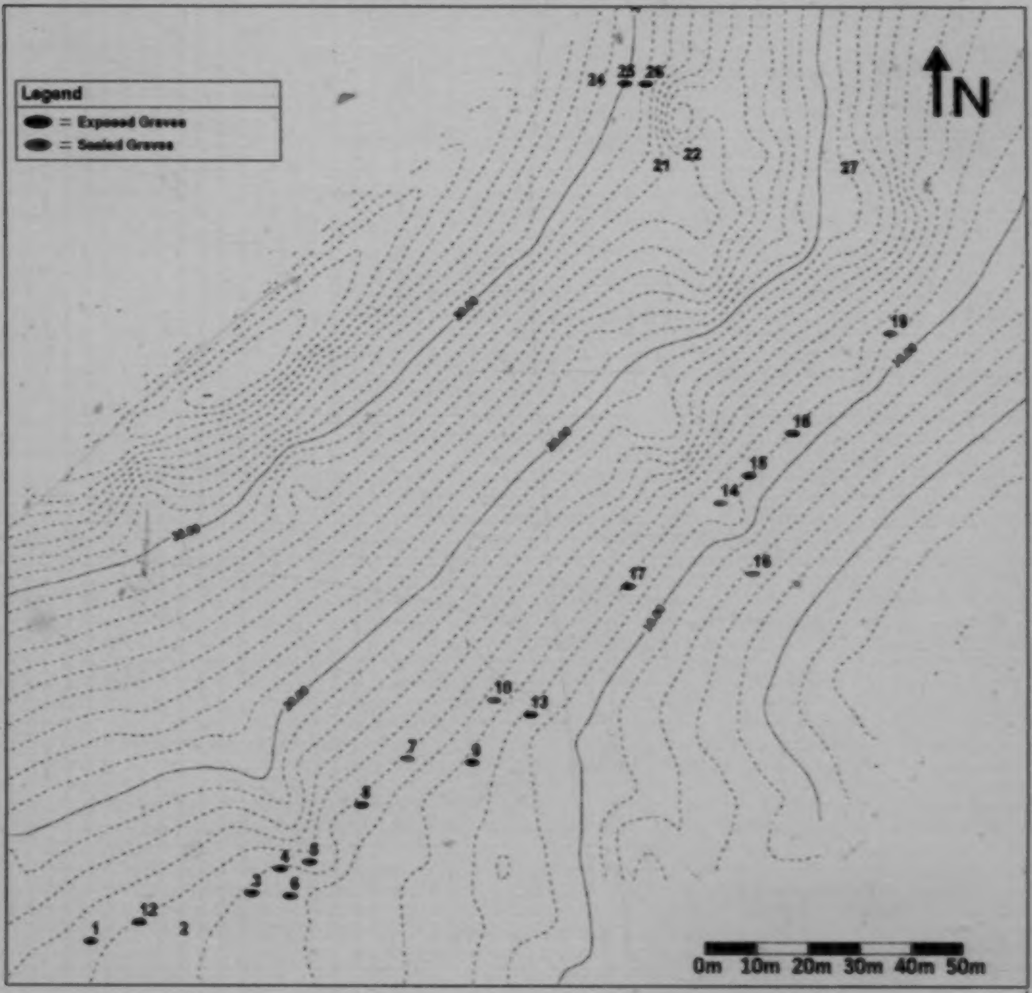
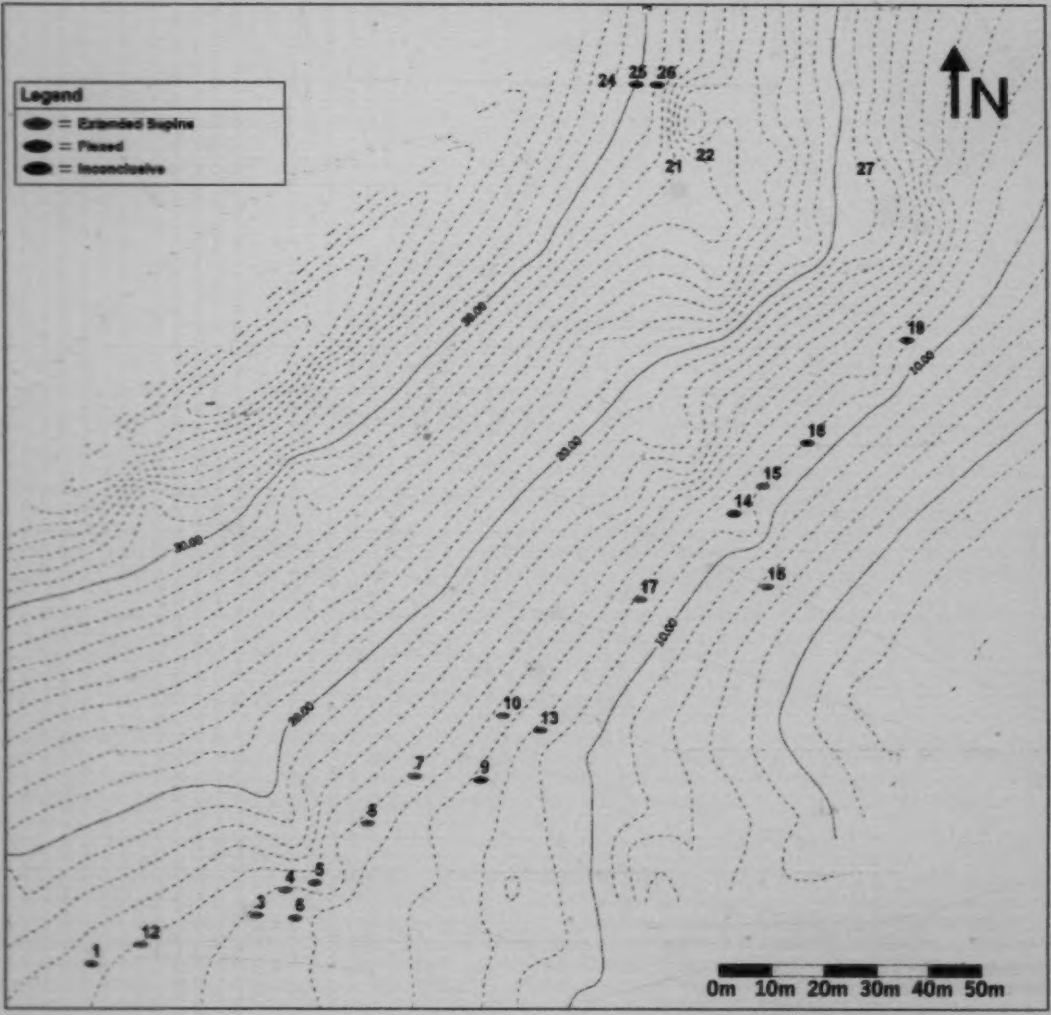

Legend
● = Exposed Graves
● = Sealed Graves
N
24
25
26
21
22
27
19
16
15
14
18
17
10
13
7
9
8
4
5
3
6
12
1
2
0m 10m 20m 30m 40m 50m

Figure 18 Spatial locations of burials at Kurma XI, according to body position.



Legend
● = Extended Supine
● = Flexed
● = Inconclusive
N
24
25
26
21
22
27
30.00
20.00
10.00
19
16
15
14
18
17
10
13
7
9
8
4
5
3
6
12
1
0m 10m 20m 30m 40m 50m

Figure 19 Spatial locations of burials at Kurma XI, according to skeletal condition.

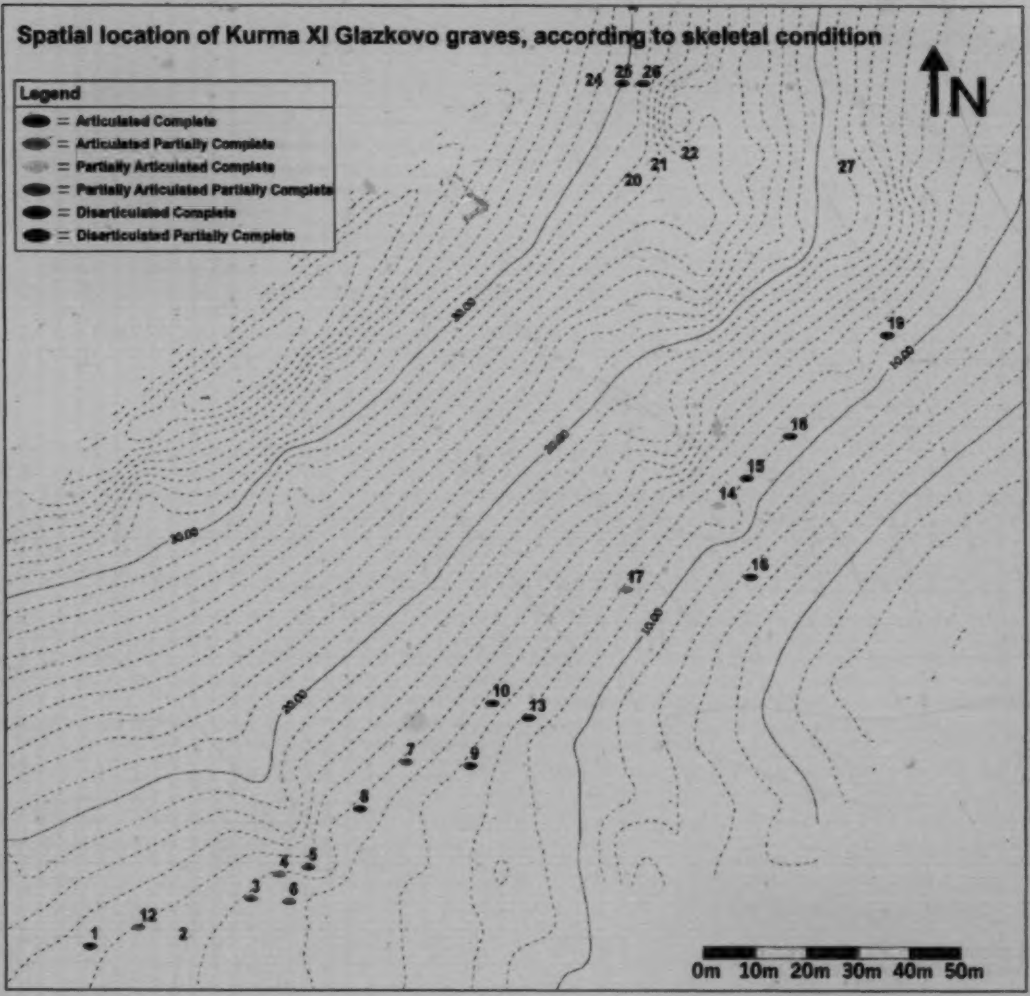

Spatial location of Kurma XI Glazkovo graves, according to skeletal condition
N
Legend
● = Articulated Complete
● = Articulated Partially Complete
● = Partially Articulated Complete
● = Partially Articulated Partially Complete
● = Disarticulated Complete
● = Disarticulated Partially Complete
24
25
26
22
21
20
27
30.00
19
10.00
18
20.00
15
14
30.00
16
17
10.00
20.00
10
13
7
9
8
5
4
3
6
12
1
2
0m 10m 20m 30m 40m 50m

Figure 20 White nephrite half rings, recovered from Grave 5, Kurma XI (Photo: A. Weber).

Figure 21 Semi-lunar pendant and other artifacts recovered from Grave 12, Kurma XI (Photo: A. Weber).

Kurma XI No. 12
2 cm

Figure 22 Inscribed human subadult femur, recovered from Grave 14, Kurma XI (Photo: A. Weber).

Figure 23 Quantities of associated artifacts, according to spatial cluster.

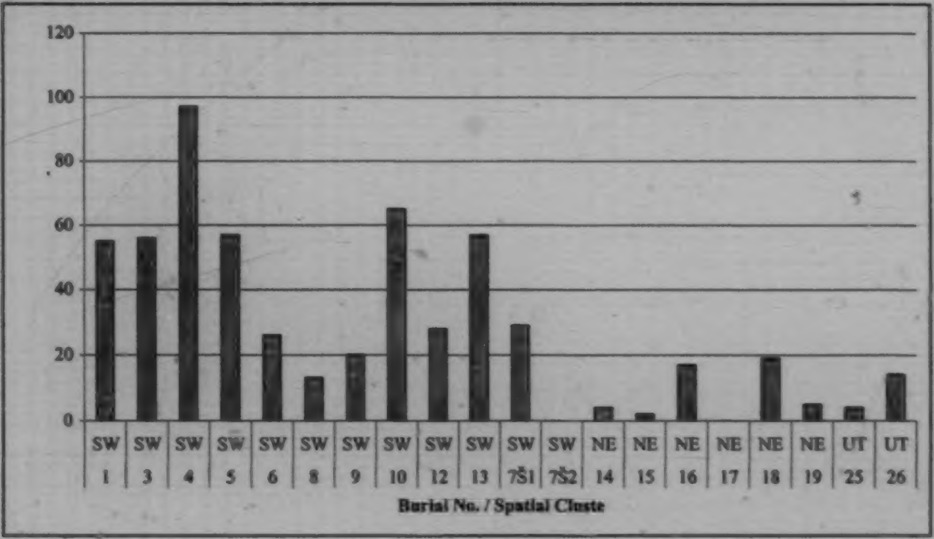


Figure 24 Quantities of associated artifacts, according to sex.

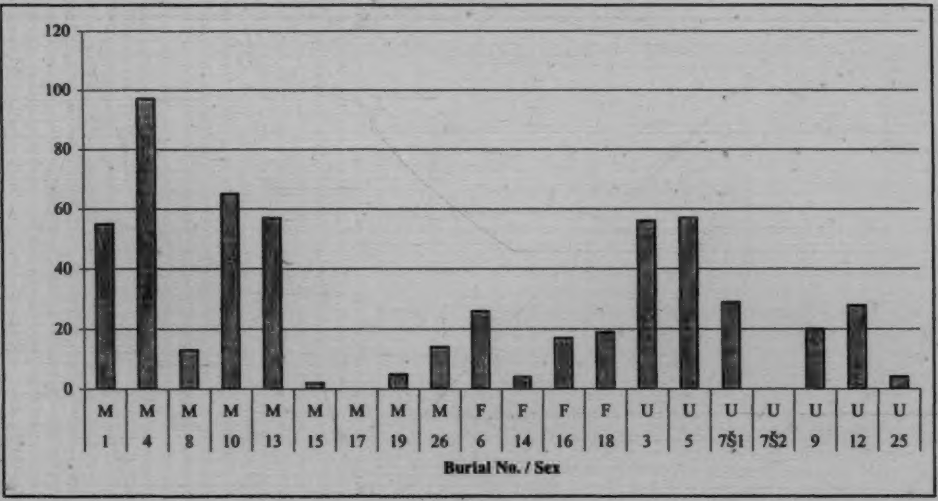


Figure 25 Quantities of associated artifacts, according to age category.

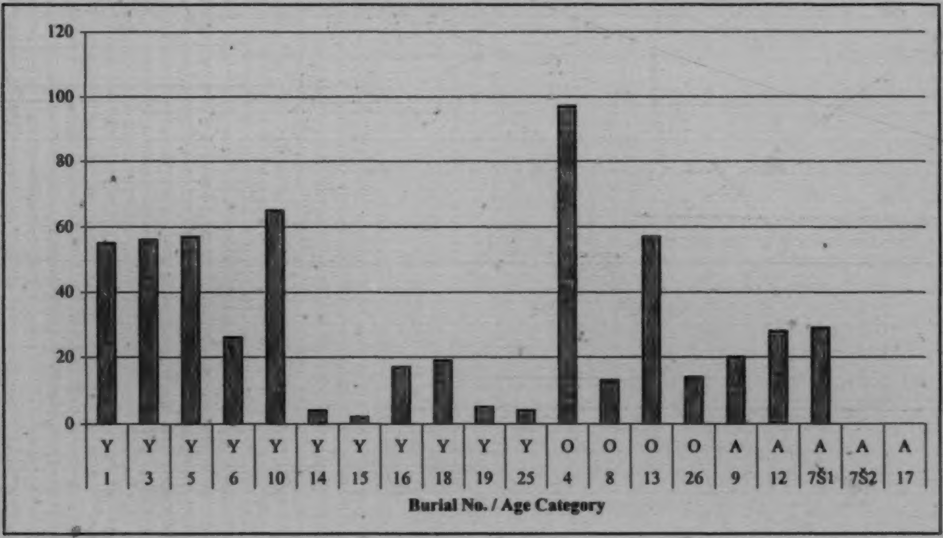


Figure 26 Temporal distribution of radiocarbon dates from Isakovo, Serovo, and Glazkovo burials from the Cis-Baikal.

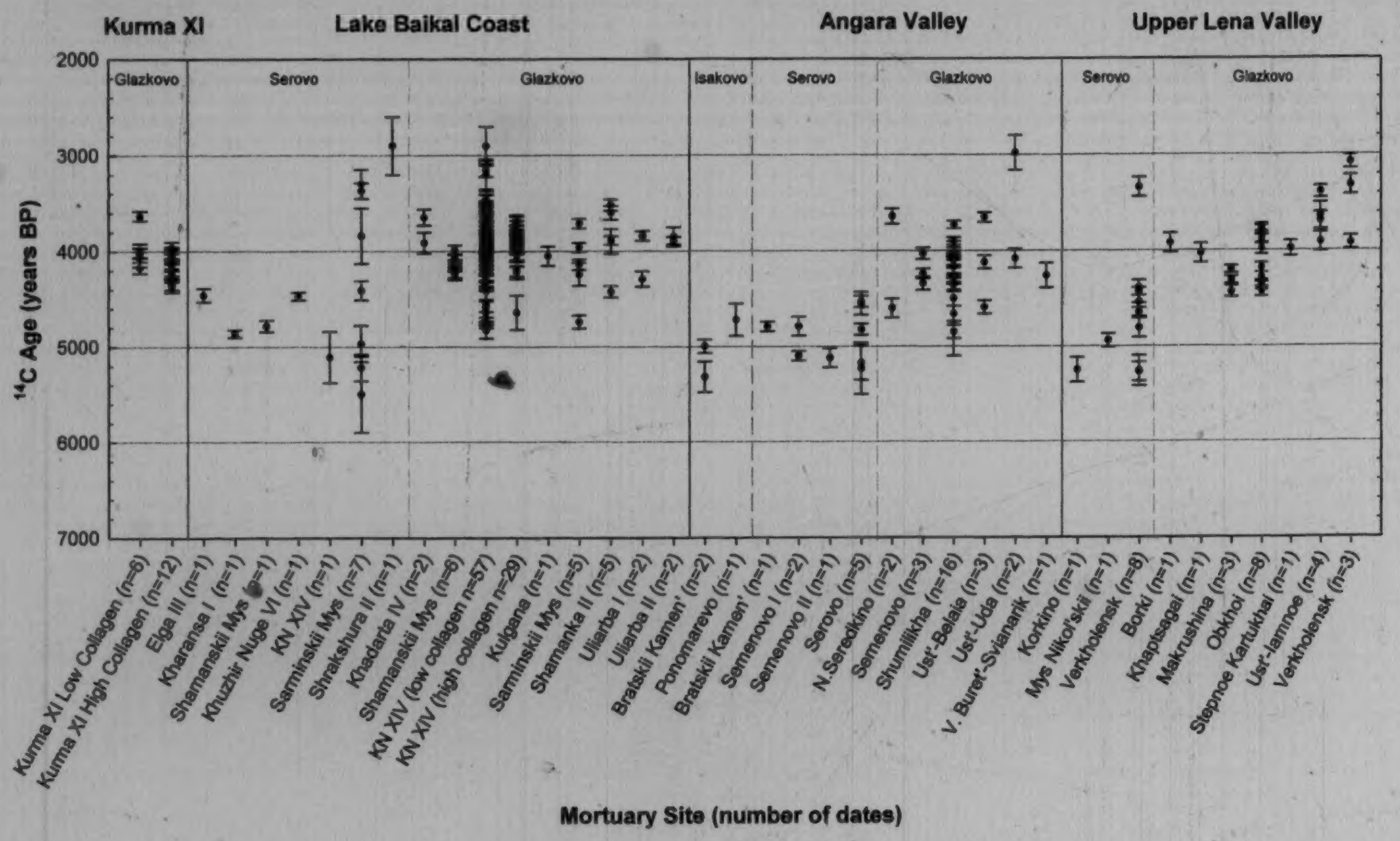


Figure 27 Khuzhir-Nuge XIV site plan.

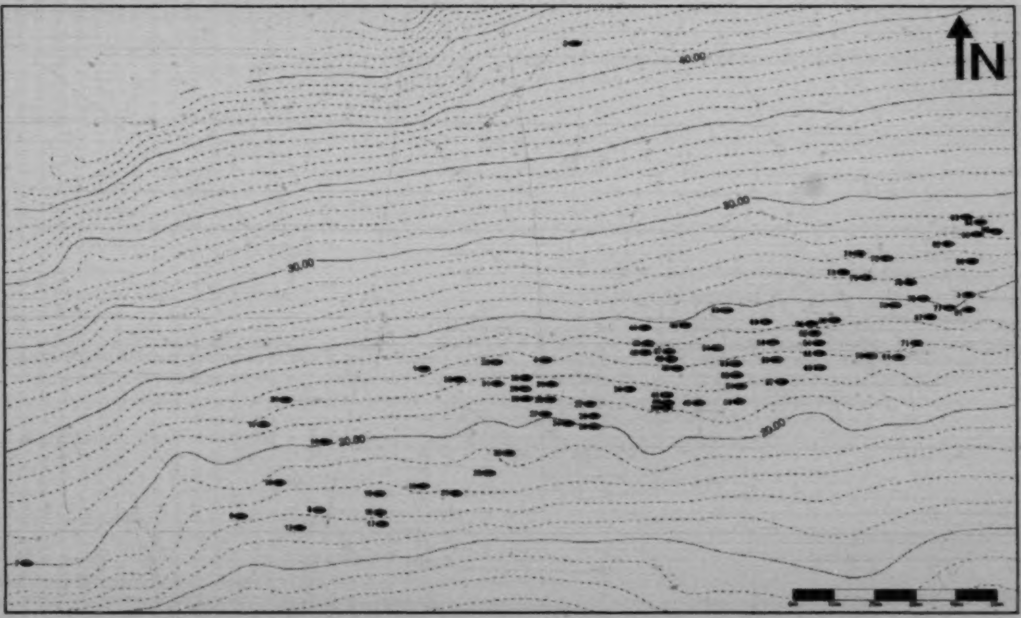
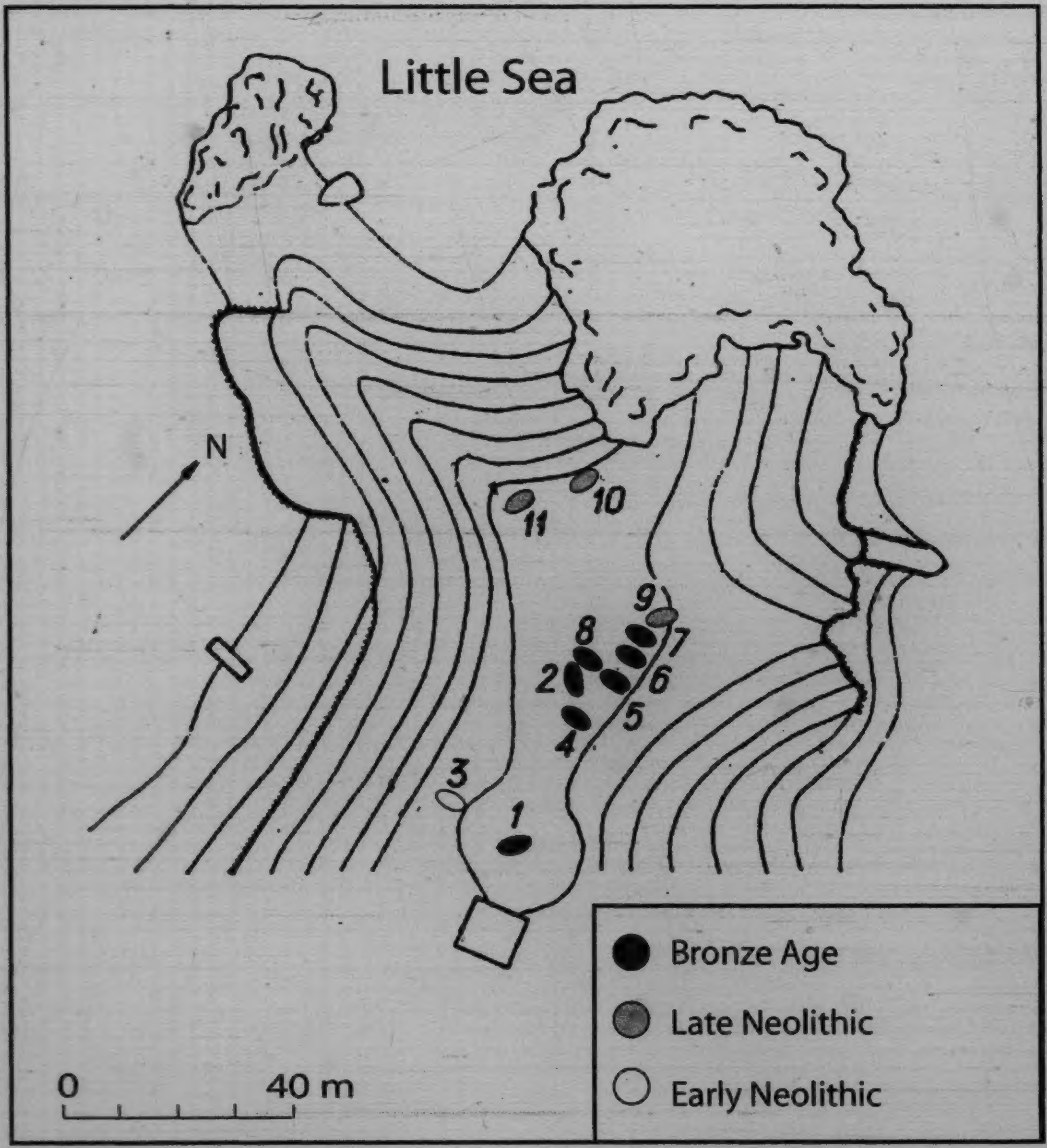

N
40.00
30.00
30.00
20.00
20.00

Figure 28 Photograph of the Shamanskii Mys mortuary site (Photo: A. Weber).

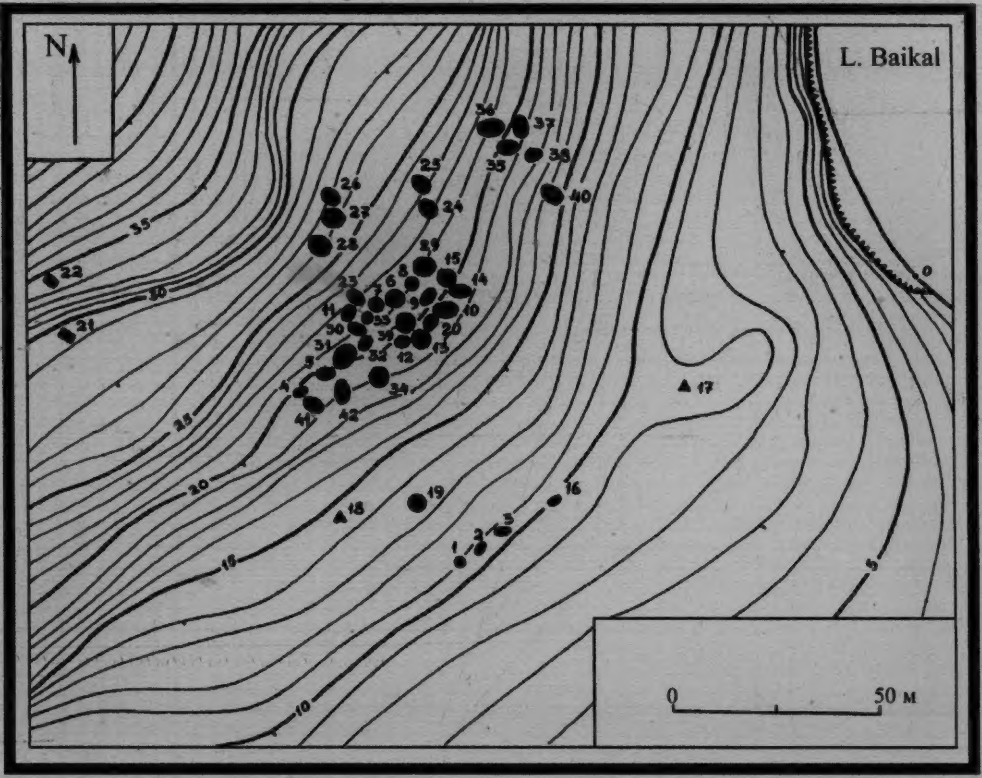
Shamanskii Mys Cemetery

Figure 29 Shamanskii Mys site plan (adapted from Konopatskii 1982, from McKenzie 2006).


Little Sea
N
11
10
9
8
7
2
6
5
4
3
1
0
40 m
● Bronze Age
● Late Neolithic
○ Early Neolithic

Grave Nos. 1-3 = Grave Nos. 1-3 (1972)
Grave Nos. 4-7 = Grave Nos. 1-4 (1973)
Grave Nos. 8-10 = Grave Nos. 1-3 (1975)
Grave No. 11 = Grave No. 1 (1976)

Figure 30 Uliarba site plan (adapted from Goriunova 1997, from McKenzie 2005).


N
L. Baikal
36
37
35
38
25
26
27
24
40
28
35
29
15
22
14
23
8
6
7
9
30
10
11
33
20
30
39
31
32
12
13
5
34
4
41
42
25
17
0
20
19
16
18
3
2
1
15
5
10
0
50 м

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Grave Descriptions

Introduction

The following descriptions of the graves excavated at Kurma XI have been compiled based on the following types of documentation:

1. Descriptive annual archaeological fieldwork reports prepared by Olga I. Goriunova—the Russian co-director of the excavation project;
2. Descriptive annual archaeological fieldwork reports prepared by Andrzej Weber—the Canadian co-director;
3. Descriptive annual osteological reports prepared by Shawna Ardley and Sabine Stratton;
4. Mortuary and osteological data collection forms;
5. Report on mineralogical determinations produced by Aleksander Sekerin, Institute of Earth Crust, Russian Academy of Sciences, Irkutsk;
6. Photographic documentation;
7. Floor plans;
8. Inventory of archaeological finds;
9. Topographic survey conducted in the field using the stadia technique;
10. Measurements of all artifacts collected in summers of 2003 and 2004; and
11. Field books containing observations recorded by field school students.

In order to streamline the grave descriptions a number of conventions have been adopted. To ensure consistency between Kurma XI grave descriptions and the previously excavated Khuzhir-Nuge XIV, the style and format very closely follow those provided by A. Weber. Some of these conventions also provide an explanation of how certain observations or data were collected or lost.

Conventions

To minimize unnecessary repetition, grave descriptions will adhere to the following conventions:

1. Burial orientations are listed relative to the position of the head; thus burial with a west-east orientation has either the head located in the west end of the grave pit, or in the case burials in sitting position, indicates the direction the individual would have been facing.
2. All dimensions with an * indicate measurements that were determined with a simple ruler, as these items were too large for sliding calipers.
3. Artifact measurements taken in 2003 were recorded to only one decimal place.
4. Unmodified faunal remains (ecofacts) were not measured, as they were often fragmentary and poorly preserved. As such, their measurements are listed as m.d. (missing data).
5. Size of excavation trenches is listed in an east–west by north–south format.

6. The site map (Figure 4) plots grave pits only, not the surface structures. The latter were more variable in size and shape as well as their locations relative to grave pits.
7. A small table providing general information about the grave, such as trench size, pit dimensions, pit and burial azimuth, rock volume and number of individuals, precede each grave description.
8. The depth of the grave pit was measured from the ancient surface, or the level from which it was originally excavated in the past.
9. Geographic orientation of surface pavings, grave pits and burials are often given in general terms while the more detailed azimuth data are presented in the tables preceding each grave description.
10. The azimuths were rounded to nearest five degrees.
11. Cairn volume was determined by piling stones over the 'footprint' of each grave. The size of the cairns was measured in the field to the nearest five centimeters.
12. To streamline description of the hundreds of stones used to build every grave the following size schedule was developed:

Size category	***Width x Length x Thickness (cm)***
Very small	5 x 5-10 x 5
Small	10-15 x 10-20 x 5-10
Medium	15-25 x 20-30 x 10-15
Large	30-40 x 30-50 x 20
Very large	Anything larger

13. All rocks are metamorphic schist slabs unless mentioned otherwise.
14. The amount of detail provided with regard to human skeletal remains is limited to general completeness, articulation and fragmentation of the surviving elements as well as the body position, and sex and age of the deceased.
15. Description of each grave is followed by a numbered list of all archaeological finds excluding human remains but including animal bones or unidentifiable bone fragments. The numbering starts at 1 in each excavation year. In most cases every find was assigned a separate inventory number, however in many instances the same number was assigned to a few objects of the same kind, such as pottery fragments of the same type, or arrowheads of the same or very similar shape. In cases when the cultural association of the object with the grave was in doubt (small bone fragments or individual pieces of pottery collected from the surface), no number was assigned. Charcoal and charred birch bark fragments were also not assigned inventory numbers. In a few other instances, inventory numbers were assigned to objects that were later considered not be artifacts; thus, they were removed from the database without reassigning the vacated numbers.

16. The archaeological finds listed at the end of each grave's description are grouped into two main and one auxiliary categories:
    a. *"Objects directly associated with the burial"* were those found in direct physical association with the interment. Such objects were usually found at the burial level. No cultural association is assumed or inferred from the physical association.
    b. *"Objects not directly associated with the burial"* were those with no physical association to the burial. These objects were usually found outside of the grave pit, between the rocks of the surface structures, or in the upper levels of the grave pit. The lack of physical association with the burial does not necessarily preclude a cultural association between the object and the burial.
    c. In graves with multiple interments it was not always possible to associate a find with a particular burial, although it was clear that the object was still associated with one of them. Such finds are grouped into a category *"objects directly associated with either burial"*.
17. Included with the list of finds are basic dimensions, such as the maximum length, width, and thickness, as well as the diameter when applicable, of essentially all artifacts. These data are provided only for general orientation, with full understanding that they do not meet requirements of specific techniques used to study, for example, morphology of arrowheads. In a few instances conjoining objects were glued together prior to taking measurements. In these cases the provided data refer to the con-joined specimen. The two following categories of artifacts were not measured:
    a. Cylindrical beads were not measured because their large numbers and minimal variability. Their range in length from 2 to 5 mm while their external diameter is rather standard around 4 mm. The perforation in the center does not exceed 1 mm.
    b. Red dear canine pendants were not measured because the original size and shape of the teeth was not altered when they were perforated at the root end. Intact specimens are not longer than 2.0 cm.
18. Descriptions of body positions provide as much detail as possible based on the surviving skeletal material and deemed relevant from the archaeological point of view. For example, if details of hands or feet placement are not given, it implies that this information was not available due to poor preservation, fragmentation, disarticulation or simple absence of the relevant elements.
19. The artifact list provides also mineralogical identification of all stone objects. Since a Russian expert made these determinations, for the sake of clarity a complete list of all applicable Russian terms as well as their English translations is included below.

Алевролит	Aleurolite
Арагонит	Aragonite
Аргиллит	Argillite
Белый нефрит	White nephrite
Глинистый сланец	Clay slate
Зеленый нефрит	Green nephrite
Известняк	Limestone
Калцит–тремолитовый скарн	Tremolite–calcite skarn
Каолинит	Kaolinite
Каолиновая глина из коры выветривания	Kaolinite
Каолиновая глина	Kaolinite
Кварц	Quartz
Кварц разноцветный	Multicolored quartz
Кварц (сливной)	Quartz
Кремень	Chert
Микрокварцит	Microquartzite
Микрокварцит (слоистый)	Microquartzite
Мрамор	Marble
Мраморизованный известняк с графитом	Marbleized limestone with graphite
Мраморизованный известняк	Marbleized limestone
Окремненный пепловый туф	Tuff
Песчаник	Sandstone
Роговик (тонкозернистый)	Hornblende
Светло–зеленый нефрит	Light–green nephrite
Светлый мрамор	White marble
Светлый нефрит	White nephrite
Слюдистый кварцит	Micacious quartzite
Сланец	Slate
Углисто–кремнистый сланец	Cherty–coal slate
Углисто–глинистый сланец	Clayish–coal slate
Тонкозернистый кварцит	Fine–grained quartzite
Халцедон	Chalcedony
Хелцедоновидный кварц	Chalcedony quartz
Хелцедоновидный микрокварцит	Chalcedony–like microquartzite
Яшмоид (кремнистый)	Jasper (cherty)
Яшмоид	Jasper
Ящма полосчатая	Banded jasper
Яшмоид полосчатый	Banded jasperoid

GRAVE 1

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Cairn Dimensions	Number of Individuals
6.0 x 7.0 m	1.75 x 0.65 x 0.70 m	55°/235°	2.30 x 1.20 x 1.15 m	1

Grave 1 was located at the southwestern-most edge of the cemetery, at the base of the hill slope. The nearest graves were Grave 12, located c. 12 m to the northeast, and Grave 2, located c. 18 m to the east. On the surface, Grave 1 was visible as a circular ring of paving stones with an outside diameter of c. 5.5 m. The width of the ring's body was somewhat irregular, but measured c. 1.5 m on average. The northern and southern portions of the ring contained the majority of stones, with very few present in the east and west. Within the body of the ring, there were three areas devoid of stones. Two, each measured c. 0.5 m in diameter, were located in central portion of the ring's northern section. The third, ovoid in shape, was found in the ring's east portion and measured c. 1.2 north–south by 0.5 m east–west. The center of the ring was devoid of stones; this area, which was ovoid in shape, measured c. 2.1 by 1.5 m. The entire arrangement was composed of irregular, angular cobbles of metamorphic schist, which varied in size from small to large.

When the stones of the surface arrangement were removed, a grave pit was discovered below the former center of the stone ring. The grave was delineated by a number of small to medium-sized angular cobbles that encircled the northeastern perimeter of the pit, as well as a score of medium-sized stones that were laid horizontally inside the eastern half of the pit. Sediment within the pit was well-sorted dark brown loamy sand, while sediment outside the pit was poorly sorted. With regard to artifacts, one sub-triangular arrowhead (No. 1) was located c. 2.0 m northwest of the grave pit's northwestern corner, one white nephrite disk (No. 2) was recovered from the southwestern-most tip of the grave pit, while a faunal mandible (No. 3) was found in the southwest corner of the pit. The northwest sector of the grave pit contained a bone/antler harpoon (No.5) associated with a bone spoon fragment (No. 4). The spoon fragment was aligned parallel to the grave pit wall, while the harpoon was aligned north–south, with the tip pointed south.

Grave 1 housed the near compete remains of an adult male, aged 20–35 years. This individual was found in an extended supine position, with arms extended at the sides of the body. The palmar surface of the left hand was oriented upward, while the right hand's palmar surface faced the grave pit floor. The majority of the skeleton was recovered from its anatomical position, however some pedal elements were scattered throughout the eastern half of the grave pit. The right fibula, right patella, as well as some pedal and manual elements were missing entirely. Overall, the natural preservation of the skeleton was good although bones in direct contact with the pit floor were more friable. None of the human remains appeared to have undergone any specific treatments, such as burning or staining with ochre. Oxidation of a bronze/copper medallion resting upon the upper abdominal area of this individual resulted in minor green staining of the sternum and the sternal edge of some ribs.

A number of items were found in direct association with this burial. Thirty-five red deer canine pendants (No. 9) were found scattered beneath the skull and around the cranium's western periphery. A white nephrite ring (No. 14) was recovered from inside of the right eye orbit. Immediately to the west of the cranium, a bone spoon fragment with a denticulate edge (No. 7) and a pointed bone implement (No. 8) were arranged parallel to each other, oriented north–south. A triangular jasper arrowhead (No. 13) was found adjacent to the left shoulder. An additional 5 red deer canine pendants were found scattered throughout the pelvic and thoracic regions (No. 11), while 4 more were clustered near the left wrist (No. 10). A leaf-shaped jasper biface (No. 12) was uncovered immediately to the west of the right os coxa. A large copper medallion (No. 16), which featured an anthropomorphic figure inside a circular frame, was found at the base of the sternum, and was associated with fragments of birch bark (No. 17), likely from a bark pouch.

Summary of objects not directly associated with the burial:

1. Sub-triangular arrowhead with a concave base 1

L=19.65 mm, W=8.84 mm, Th=3.48 mm (quartz)

2. Disk 1

Outside ∅=48.51 mm, W=22.07 mm, Th=5.01 mm, Aperture □=4.68 mm (white nephrite)

3. Faunal mandible 1

L=85.26 mm, W=35.31 mm, Th=16.42 mm (bone)

4. Spoon fragment (conjoins with No. 7) 1

L=84.04 mm, W=27.26 mm, Th=5.87 mm (antler)

Faunal bone fragments 4

Summary of objects directly associated with the burial:

5. Harpoon with asymmetric barbs and a spur near the base 1

L=215* mm, W=12.94 mm, Th=8.48 mm (bone/antler)

6. Spoon fragment 1

L=187.5* mm, W=21.21 mm, Th=9.25 mm (antler)

7. Spoon fragment with denticulate end (conjoins with No. 4) 1

L=137.75 mm, W=51.76 mm, Th=3.81 mm (antler)

8. Bone/antler object with sharpened end and two spurs 1

L=275* mm, W=28.49 mm, Th=8.26 mm (bone/antler)

9. Red deer canine pendants

9.01 around skull 26

9.02 under skull 8

9.03 associated with bone objects Nos. 7 and 8 1

10. Red deer canine pendants (near left wrist) 4

11. Red deer canine pendants (chest area) 5

12. Leaf-shaped biface 1

L=91.51 mm, W=38.34 mm, Th=6.42 mm (jasper)

13. Triangular arrowhead 1

L=21.12 mm, W=13.84 mm, Th=3.99 mm (jasper)

14. Ring 1

Outside Ø=13.89 mm, W=5.75 mm, Th=3.70 mm, Aperture □=6.70 mm (white nephrite)

15. Bone points with split bases..2
    15.01 L=138.13 mm, W=7.30 mm, Th=6.76 mm (bone)
    15.02 L=85.68 mm, W=5.93 mm, Th=5.45 mm (bone)
16. Copper medallion with anthropomorphic image 1
    L=97.74 mm, W=97.48 mm, Th=4.27 mm, Thickness of outer ring=6.57 mm (copper)
17. Fragments of birch bark pouch ....n/a

GRAVE 2

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
4.0 x 4.0 m	1.60 x 0.40 x 0.30 m	60°/n/a	2.10 x 1.20 x 0.80 m	0

Grave 2 was located at the southernmost edge of the cemetery, at the base of the hill slope. The nearest graves were Grave 12, located c. 10 m to the northwest, and Grave 1, located c. 18 m to the west. Grave 2 was visible on the surface as an ovoid cluster of paving stones that measured c. 4.8 m northwest–southeast by c. 3.4 m northeast–southwest. The width of the ring's body was somewhat irregular, but on average measured c. 1.2 m. Two small areas devoid of stones and measuring c. 0.4 m in diameter were found within the southern and southwestern portions of the ring. The ring's center was completely devoid of stones, forming an area that measured c. 2.0 m by c. 1.0 m. The paving was composed of irregularly shaped metamorphic schist cobbles, varying in size from medium to large, however stones located in the eastern half of the ring were generally larger and more numerous than those in the western half.

Upon removal of the surface stones, a grave pit was roughly demarcated by a number of stones arranged along the northeastern and southwestern borders of the pit. A number of medium-sized stones were found along the central portion of the pit as well. The sediment within the pit was very similar to that which surrounded the pit, the former only slightly more fine and darker yellow in color, although the deeper sections of the pit contained darker, finer sediment. Two charcoal fragments were recovered from the northwestern quadrant in the middle part of the grave pit.

No osteological remains were recovered from this grave. A single aragonite disk (No. 18) was found on the western portion of the grave pit floor.

Summary of grave inclusions:

18. Disk fragment..1

Outside ∅=26.74 mm, W=24.14 mm, Th=3.19 mm, Aperture □=4.14 (aragonite)

GRAVE 3

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
6.0 x 6.0 m	2.40 x 0.75 x 0.45 m	75°/255°	2.30 x 1.20 x 1.00 m	1

Grave 3 was located in the southwestern half of the cemetery, at the base of the hill slope. This grave was located in a small cluster that contained Graves 3–6. The nearest graves were Grave 4, located c. 8 m to the northeast, and Grave 6, located c. 7 m to the east. Grave 3 was visible on the surface as a large irregular ring of paving stones with a diameter of c. 5.0 m. The width of the ring was somewhat irregular, but measured c. 1.0 m on average. Two small areas devoid of stones were located in the southern body of the ring, each of which measured c. 0.40 m in diameter. An oval-shaped area devoid of stones comprised the center of the ring, and measured c. 2.0 m east–west by 1.0 m north–south. In general, stones located at the outer perimeter of the arrangement overlaid the inner stones, creating a subtle layered effect. The majority of stones were located in the southern half of the ring, while the northwest portion contained the fewest. The stones themselves were irregular-shaped cobbles composed of metamorphic schist, and varied in size from small to large. Sediment throughout the excavation trench was poorly sorted, yellow-brown loamy sand.

When the stones of the surface paving were removed, a grave was discovered below the ring's center. The pit was delineated by number of small cobbles located along its northern and eastern borders; stones positioned on the northeast margin of the grave were oriented vertically, resting nearly parallel to the grave pit walls. The north-central portion of the pit contained a number of cobbles in variable orientations, while additional stones were randomly scattered around the western border of the grave pit. The southeastern portion of the grave pit also contained a number of stones laid horizontally. A flake (No. 19) was found c. 1 m northeast of the pit margin immediately beneath the paving stones, while a second flake (No. 20) was located on the eastern edge of the grave pit. Sediment within the grave was composed of well-sorted light-medium brown loamy sand, while the surrounding sediment was poorly sorted.

Grave 3 housed the incomplete remains of a 20–30 year old adult of unknown sex. According to the position of the lower limbs, this individual was likely interred in an extended supine position with arms resting parallel to the body. The superior skeleton was apparently subjected to extensive disturbance, resulting in horizontal and vertical scattering of most upper body elements. The left humerus was encountered at a higher excavation level than the remainder of the skeleton, and was associated with a number of disarticulated ribs, a prismatic blade (No. 21) and two red deer canine pendants (No. 22). At the burial level, the upper limbs were found in general anatomical position, with the exception of the right humerus, which was found in the center of the pit, resting perpendicular the other upper limb elements. Only three left manual elements were recovered, while bones from the right hand were entirely missing. The thoracic region contained a number of fragmented ribs as well as both clavicles. Vertebral elements were notably absent, with the exception of three thoracic vertebrae. The articulated lower limbs were found in the east portion of the grave, however the os coxae and left femur were missing. Nearly all pedal bones were recovered from their anatomical positions. The cranium and mandible were almost entirely missing, however, with only small fragments of the temporal bone and sphenoid recovered. Overall, the preservation of skeletal remains was fair, although the skeletal inventory was only partially complete. None of the human remains appeared to have undergone any specific treatments, such as burning or staining with ochre.

Items directly associated with this burial were generally arranged in two clusters. The smaller of these was located on the north side of the left wrist, and contained 8 red deer canine pendants (No. 22), 2 chert blades (Nos. 21 and 24), 4 bone needle fragments (No. 30), 2 bone points (Nos. 31 and 32), a copper needle (No. 27), and 5 faunal bone fragments (No. 33). The second cluster was located over the individual's left ankle, and contained 10 lithic blades (No. 34), 6 end scrapers (Nos. 35, 36, 37), 2 pointed bone implements (No. 41), a green nephrite axe (No. 40), and 13 faunal bone fragments (Nos. 42 and 43). An additional 4 red deer canine pendants (No. 25) were found scattered around the right knee, ankle, and in the area of the missing left femur.

Summary of objects not directly associated with the burial:

19. Flake with retouch...1

    L=42.60 mm, W=32.27 mm, Th= 14.34 mm (jasper)

20. Flake...1

    L=26.60 mm, W=17.19 mm, Th=4.47 mm (jasper)

Summary of objects directly associated with the burial:

21. Prismatic blade..1

    L=17.56 mm, W=8.35 mm, Th=2.73 mm (jasper)

22. Red deer canine pendants..2

23. Red deer canine pendants	8
24. Blade	1
L=48.12 mm, W=37.35 mm, Th=6.29 mm (jasper)	
25. Red deer canine pendants	4
Cluster 1	
26. Red deer canine pendants	8
27. Fragment of a copper needle	1
L=39.10 mm, W=3.08 mm, Th=2.83 mm (copper)	
28. Blade	1
L=67.16 mm, W=26.54 mm, Th=7.20 (jasper)	
29. Blade with alternating retouch on both faces	1
L=54.19 mm, W=39.39 mm, Th=7.63 (jasper)	
30. Bone needle fragments	4
L=41.84 mm, W=1.73 mm, Th=1.25 mm (bone)	
31. Bone point	1
L=m.d., W=m.d., Th=m.d. (bone)	
32. Bone point	1
L=100.41 mm, W=4.39 mm, Th=2.86 mm (bone)	
33. Faunal bone fragments	5
Cluster 2	
34. Blades	10
34.01 L=67.14 mm, W=47.12 mm, Th=7.34 mm (jasper)	
34.02 L=59.68 mm, W=36.54 mm, Th=4.32 mm (jasper)	
34.03 L=65.62 mm, W=28.65 mm, Th=7.49 mm (jasper)	
34.04 L=73.12 mm, W=29.64 mm, Th=11.87 mm (jasper)	
34.05 L=62.40 mm, W=53.30 mm, Th=9.99 mm (jasper)	
34.06 L=57.22 mm, W=39.77 mm, Th=5.22 mm (jasper)	
34.07 L=58.28 mm, W=40.69 mm, Th=10.44 mm (jasper)	
34.08 L=50.71 mm, W=41.04 mm, Th=6.44 mm (jasper)	
34.09 L=57.87 mm, W=43.77 mm, Th=11.65 mm (jasper)	

34.10 L=28.93 mm, W=22.56 mm, Th=3.80 mm (jasper)

35. End scrapers on blades with one retouched edge........3

35.01 L=37.71 mm, W=23.52 mm, Th=5.84 mm (jasper)

35.02 L=24.51 mm, W=19.23 mm, Th=3.92 mm (jasper)

35.03 L=35.18 mm, W=17.41 mm, Th=6.46 mm (jasper)

36. End scrapers on blades with one retouched edge........2

36.01 L=50.67 mm, W=37.10 mm, Th=9.61 mm (jasper)

36.02 L=55.86 mm, W=18.27 mm, Th=5.61 mm (jasper)

37. End scraper on a blade with retouch........1

L=49.52 mm, W=28.26 mm, Th=6.89 mm (jasper)

38. Round side scrapers on flakes........2

38.01 L=23.41 mm, W=24.35 mm, Th=5.94 mm (jasper)

38.02 L=23.98 mm, W=20.60 mm, Th=5.00 mm (jasper)

39. End scraper/perforator with retouch........1

L=47.43 mm, W=21.08 mm, Th=5.93 mm (jasper)

40. Axe........1

L=52.51 mm, W=35.28 mm, Th=13.37 mm (green nephrite)

41. Bone points........2

41.01 L=m.d., W=m.d., Th=m.d. (bone)

41.02 L=m.d., W=m.d., Th=m.d. (bone)

42. Faunal long bone fragments (unidentified)........11

43. Faunal bone fragments (bird)........2

GRAVE 4

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
5.0 x 4.0 m	2.05 x 0.65 x 0.65 m	65°/245°	2.85 x 1.15 x 1.0 m	1

Grave 4 was located in the southwestern portion of the cemetery, at the base of the hill slope. The nearest graves were Grave 3, located c. 8 m to the southwest, Grave 6, located c. 5 m to the south, and Grave 5, located c. 7 m to the east-northeast. This grave was part of a small cluster that contained Graves 3–6. Grave 4 was identified on the surface by a compact, ovoid ring of paving stones, whose long axis was aligned east-northeast–west-southwest. The ring measured c. 5.0 m by 4.0 m, with the body averaging c. 1.2 m in width. The center of the ring contained an oval-shaped area devoid of stones, which was bisected by line of paving stones. This empty oval area measured c. 2.0 m by 1.5 m. Stones located towards the outer perimeter of the ring arrangement often overlaid those on the inside, creating a layered effect. The stones themselves were irregularly shaped cobbles of metamorphic schist that varied in size from small to large.

After the removal of the surface stones, a grave was discovered below the ring's center. The pit was defined by a number of medium-sized stones arranged along the northern, eastern, and southwestern margins of the grave. These stones were generally angular and irregular in shape. Sediment throughout the excavation trench was poorly sorted dark brown loamy sand, although sediment within the pit was lighter in color. Two red deer canine pendants (No. 44) were recovered from the center of the grave pit, while a triangular arrowhead (No. 45) was recovered from the pit's central region, c. 20 cm from the southern wall. A right clavicle was recovered from immediately adjacent to the northwestern portion of the pit wall.

Grave 4 contained the partial remains of an approximately 35–45 year old male. The burial was interred in an extended supine position, with arms resting at the sides. The palmar surfaces of both hands faced the grave floor. The skeletal elements present were generally found in their anatomical positions. The bones of the right limb and left lower limbs were found in anatomical position and articulated. The lumbar vertebrae were recovered from their anatomical position, as were the sacrum and os coxae. The cranium, mandible, some ribs, the left humerus, left clavicle, both scapulae, and all cervical and thoracic vertebrae were absent. Overall, the preservation of skeletal remains was fair, although the skeletal inventory was only partially complete. None of the human remains appeared to have undergone any specific treatments, such as burning or staining with ochre.

Artifacts recovered from this grave were contained within a few spatial clusters. The first was located in the west corner of the pit, and contained two nephrite axes (Nos. 49 and 50) and one large bifacial point (No. 51). A cluster of 37 red deer canine pendants was found c. 15 cm north of the axes, in the presumed location of the absent skull. An additional 4 red deer canine pendants (No. 46) were recovered from the thoracic region, while 3 more (No. 52) were located adjacent to the left knee. The majority of items, however, were recovered from a cluster of objects found immediately north of the left os coxa. This collection of artifacts included 141 bone/antler point fragments (Nos. 53, 54, and 55) that were arranged parallel to the body axis, as well as 5 red deer canine pendants (No. 56). An additional 9 lithic arrowheads (Nos. 57–62) and 6 arrowhead fragments (No. 63) were located in a small grouping immediately north of the left distal femur, to the east-northeast of the bone points.

Summary of objects not directly associated with the burial:

44. Red deer canine pendants	2
45. Arrowhead fragment L=23.52 mm, W=11.53 mm, Th=3.57 mm (kaolinite)	1
46. Red deer canine pendants	4
47. Sub-triangular arrowhead with a straight base L=24.20 mm, W=12.00 mm, Th=4.85 mm (jasper)	1

Summary of objects directly associated with the burial:

Skull Cluster

48. Red deer canine pendants	37
49. Axe	1
L=120.64 mm, W=55.75 mm, Th=17.04 mm (green nephrite)	
50. Axe	1
L=69.57 mm, W=42.39 mm, Th=9.05 mm (green nephrite)	
51. Leaf-shaped biface	1
L=132.82 mm, W=44.66 mm, Th=8.86 mm (jasper)	

Knee Area

52. Red deer canine pendants	3

Os Coxa Cluster

53. Bone points with split bases	38
53.01 L=130.67 mm, W=7.15 mm, Th=5.33 mm (bone)	
53.02 L=136.84 mm, W=6.70 mm, Th=4.75 mm (bone)	
53.03–53.38 m.d. (bone)	
54. Fragments of bone points with split bases	93
54.01 L=103.53 mm, W=6.38 mm, Th=2.21 mm (bone)	
54.02 L=83.29 mm, W=6.30 mm, Th=1.89 mm (bone)	
54.03–54.93 m.d. (bone)	
55. Fragments of 4 bone points with split bases	10
55.01 L=114.53 mm, W=2.33 mm, Th=2.33 mm (bone)	
55.02–55.10 m.d. (bone)	
56. Red deer canine pendants	5

Left Distal Femur Cluster

57. Elongated sub-triangular arrowhead with concave base	1
L=31.82 mm, W=12.10 mm, Th=3.31 mm (jasper)	
58. Sub-triangular arrowheads with concave bases	2
58.01 L=24.25 mm, W=11.53 mm, Th=3.75 mm (jasper)	
58.02 L=19.17 mm, W=12.50 mm, Th=3.87 mm (jasper)	

59. Sub-triangular arrowheads with straight bases and edge retouch 2

59.01 L=24.64 mm, W=11.95 mm, Th=3.31 mm (jasper)

59.02 L=19.05 mm, W=11.96 mm, Th=4.37 mm (jasper)

60. Sub-triangular arrowhead with convex base and retouch 1

L=21.42 mm, W=12.90 mm, Th=2.42 mm (jasper)

61. Leaf-shaped arrowheads 2

61.01 L=10.86 mm, W=11.96 mm, Th=1.82 mm (jasper)

62. Elongated arrowhead with slightly concave base 1

L=21.75 mm, W=14.04 mm, Th=4.52 mm (jasper)

63. Arrowhead fragments..5

63.01 L=21.00 mm, W=12.81 mm, Th=4.12 mm (jasper)

63.02 L=12.90 mm, W=13.87 mm, Th=3.82 mm (jasper)

63.03 L=9.77 mm, W=11.99 mm, Th=2.94 mm (jasper)

63.04 L=18.87 mm, W=12.17 mm, Th=3.90 mm (kaolinite)

63.05 L=12.46 mm, W=12.58 mm, Th=3.41 mm (kaolinite)

GRAVE 5

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
5.0 x 5.0 m	2.20 x 0.70 x 0.60 m	65°/245°	2.90 x 1.10 x 1.10 m	1

Grave 5 was located at the base of the hill slope in the southwestern half of the cemetery. The nearest graves were Grave 6, located c. 8 m to the southwest, and Grave 4, located c. 5 m to the west-southwest. This grave was part of a small cluster that contained Graves 3–6. A compact circular ring of paving stones, which measured c. 5.0 m in external diameter, marked the location of Grave 5 on the surface. The width of the ring's body was somewhat irregular, but on average measured c. 1.0 m. The center of the ring was generally devoid of stones and measured c. 3.0 m east–west by 1.5 m north–south, although a few large cobbles were scattered randomly in the center. An additional circular area devoid of stones was located in the southern body of the ring, and measured c. 0.40 m in diameter. The paving stones, which were generally angular in shape, varied in size from small to large. Most were lying flat, while a few extended below the surface. Sediment throughout the excavation trench was poorly sorted, with patches of light, medium, and dark brown loamy sand, although sediment in the ring's center was generally lighter in color. Two fragments of undecorated pottery (No. 64) were recovered from among the paving stones.

After the removal of the surface stones, a grave pit was discovered beneath the empty center of the ring. The borders of the grave were defined by lighter-colored sediment inside the pit. Small clusters of cobbles, as well as two vertically inclined stones, delineated the grave pit's western and northeastern perimeters, respectively. In addition, several slab-like stones were positioned around the western border of the grave, while an additional two stones were found resting horizontally along the northeast border of the pit. Sediment within the pit was generally well-sorted dark brown loamy sand, with various lighter and darker patches. Eight red deer canine pendants (No. 67) were scattered throughout the grave pit's northwestern sector, while a prismatic blade (No. 65) and a flake (No. 66) were recovered from the northwestern and western portions of the grave pit, respectively. Fragments of charcoal and yellow iron oxide or ochre were recovered from the pit's central area.

Grave 5 housed the incomplete remains of a 25–35 year old individual of unknown sex. According to the position of the lower limbs, the burial was extended and supine, although the original arrangement of the arms was impossible to determine. A fragment of the right os coxa, as well as the right femur, tibia, and fibula were found articulated and in their anatomical locations. The left femur was found in anatomical position, however the remaining elements of the lower left limb were missing. The remaining skeletal elements were generally disarticulated. The superior skeleton was represented by the a number of rib and vertebral fragments, a second cervical vertebra, both humeri, clavicles, fragments of both scapulae, and the right radius and ulna. These were disarticulated and scattered vertically and horizontally throughout the western half of the grave pit. Notably absent were nearly all manual and pedal elements, the cranium, mandible, and left os coxa. Despite the absence of cranial elements, however, seven teeth were recovered from the western portion of the grave pit. Overall, the natural preservation of the bones was poor and the skeletal inventory was incomplete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre.

Grave 5 contained a large quantity of grave goods, which were dispersed throughout the grave pit. An aragonite disk (No. 68), and a white nephrite ring (No. 76) were recovered from the eastern portion of the grave pit, while a smaller aragonite disk (No. 77) was found in the west end of the pit, associated with the scattered elements of the upper body. A blade (No. 80) was positioned adjacent to the northeastern margin of the grave pit, while an additional aragonite disk (No. 70) was recovered from the north grave pit wall. Four white nephrite ring halves (No. 69) were positioned below the femoral midshafts. Two of these half-rings conjoined, while the remaining two did not. Interestingly, the rings possessed small notches, which facilitated their deliberate breakage into accurate halves. Two of these were located below the midshaft of the right femur, one was found under the midshaft of the left femur, while the last was directly west of the proximal end of the left femur. One bone needle box (No. 70) was recovered from the below the left femur, and a second (No. 70) north of the right femur. A large spoon (No. 71) was positioned perpendicularly below the midshaft of the left femur. Scattered throughout the pelvic area were 31 red deer canine pendants (No. 74), 3 bear canine pendants (No. 72), one bear canine pendant fragment (No. 75), and a collection of lithic flakes (Nos. 81–84).

Summary of objects not directly associated with the burial:

64. Fragments of smooth-surfaced pottery without decoration 2
    64.01 L=25.17 mm, W=22.09 mm, Th=7.50 mm (ceramic)
    64.02 L=19.17 mm, W=18.44 mm, Th=7.63 mm (ceramic)
65. Blade fragment 1
    L=8.09 mm, W=5.70 mm, Th=1.52 mm (microquartzite)
66. Flake 1

L=13.49 mm, W=11.09 mm, Th=2.59 mm (quartz)

67. Red deer canine pendants..8

Summary of objects directly associated with the burial:

68. Disk..1

Outside ∅=29.93 mm. W=13.87 mm, Th=3.59 mm, Aperture □=3.16 (aragonite)

69. Large half rings...4

69.01+69.02 Outside ∅=129.35 mm, W=11.03 mm, Th=6.99 mm, Aperture □=107.49 mm (white nephrite)

69.03 L=110.34 mm, W=11.07 mm, Th=6.36 mm (white nephrite)

69.04 L=124.78 mm, W=9.25 mm, Th=6.65 mm (white nephrite)

70. Needle boxes made of faunal long bones 3

70.01 L=108.53 mm, W=10.76 mm, Th=1.76 mm (bone)

70.02 L=119.26 mm, W=11.75 mm, Th=2.40 mm (bone)

70.03 L=113.26 mm, W=9.20 mm, Th=1.60 mm (bone)

71. Spoon with deep reservoir and long handle..1

L=226*, W=47.85 mm, Th=2.67 mm (bone/antler)

72. Bear canine pendants 3

72.01 L=19.04 mm, W=23.63 mm, Th=15.72 mm (tooth)

72.02 L=m.d., W=m.d., Th=m.d. (tooth)

72.02 L=m.d., W=m.d., Th=m.d. (tooth)

73. Disk..1

Outside ∅=21.32 mm, W=8.72 mm, Th=3.09 mm, Aperture □=3.76 mm (white nephrite)

74. Red deer canine pendants..31

75. Bear canine fragment 1

76. Ring..1

Outside ∅=20.54 mm, W=6.95 mm, Th=4.96 mm, Aperture □=3.07 mm (white nephrite)

77. Disk..1

Outside ∅=23.37 mm, W=10.50 mm, Th=4.28 mm, Aperture □=3.50 mm (aragonite)

78. Disk fragment..1

L=27.35 mm, W=10.58 mm, Th=2.22 mm, Aperture □=10.57 (aragonite)

79. Disk..1

Outside ∅=51.51 mm, W=23.66 mm, Th=5.00 mm, Aperture □=6.15 mm (aragonite)

80. Blade with dorsal retouch on both edges 1

L=92.16 mm, W=26.71 mm, Th=8.55 (jasper)

81. Flakes 4

81.01 L=20.03 mm, W=14.07 mm, Th=3.47 mm (microquartzite)

81.02 L=19.92 mm, W=12.00 mm, Th=4.65 mm (microquartzite)

81.03 L=13.25 mm, W=13.23 mm, Th=3.07 mm (microquartzite)

81.04 L=21.01 mm, W=17.09 mm, Th=4.10 mm (microquartzite)

82. Prismatic blade..1

L=19.53 mm, W=7.90 mm, Th=3.68 mm (microquartzite)

83. Blade 1

L=35.20 mm, W=8.71 mm, Th=7.28 mm (microquartzite)

84. Flake...1

L=14.31 mm, W=12.41 mm, Th=5.43 mm (flint)

GRAVE 6

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
6.0 x 6.0 m	2.10 x 0.65 x 0.60 m	65°/245°	2.60 x 1.00 x 0.90 m	1

Grave 6 was located in the southwestern portion of the cemetery, at the base of the hill slope. The nearest graves were Grave 5, located c. 7 m to the northeast, and

Grave 4, located c. 6 m to the northwest. This grave was part of a small cluster that contained Graves 3–6. On the surface, an ovoid ring of paving stones, which measured c. 5.5 m by 4.5 m, marked the location of Grave 6. The long axis of the oval was aligned east-northeast–west-southwest. The width of the ring's body varied; the western and eastern portions measured c. 0.80 m, while the north and south sections were c. 1.6 m in width. The center of the ring was free of stones, with the exception of a few scattered cobbles. This area measured c. 3.0 m east–west by c. 1.5 m north–south. The majority of stones were contained within the ring's northern and southern portions, while markedly fewer were found along the western and eastern sections. The paving stones themselves were irregular, medium-sized angular cobbles of metamorphic schist that varied in size from small to large, however the majority were medium in size. Sediment throughout the excavation trench was poorly sorted medium brown loamy sand, but sediment within the center of the ring was generally lighter in color. A burin (No. 85) was recovered from the western portion of the ring's open center.

After the removal of the surface stones, a grave pit was discovered below the northern portion of the ring's center. The grave was delineated by a dozen stones that were arranged in a continuous line along the pit's northern perimeter, as well as the well-sorted sediment within the grave pit; the color of this sediment was somewhat variable, however. Additional excavation revealed 3 stones laid horizontally adjacent the grave pit's northwestern corner, as well as an additional concentration of angular stones located in the eastern portion of the pit. An ungulate incisor (No. 86) was recovered from the central region of the grave pit, while a red deer canine pendant fragment (No. 87) was located beside the central portion of the pit's north wall. An additional red deer canine pendant (No. 88) and a faunal incisor (No. 93) were found adjacent to the pit's southwestern wall, while two more ungulate incisors (No. 89) were recovered from the central region of the pit.

Grave 6 contained the near complete remains of a female aged 20–29 years. The burial was interred in an extended supine position with the legs slightly flexed outward. The left arm was extended along side of the body, although the original position of the right arm was impossible to determine. Most elements of the lower appendicular skeleton, including nearly all of the pedal bones, were found in their anatomical and articulated positions, with a few notable exceptions. The right os coxa was disarticulated from the right femur, rotated c. 180°, and rested on the proximal right femur. Most elements belonging to the superior skeleton, including vertebral fragments, rib fragments, and both scapulae were disarticulated, and found in a loose cluster in the western end of the grave pit. The left humerus, radius and ulna were found articulated in their anatomical positions, although the radius was slightly displaced. The right radius and ulna were found in their general anatomical regions. The cranium was found at a higher excavation level, c. 20 cm above the disarticulated superior skeleton, and positioned with basal portion facing upwards. Nearly all manual elements, the mandible, the right humerus, and the left os coxa were missing. Overall, the natural preservation of the bones was fair, although the skeletal inventory was incomplete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre.

A number of items were directly associated with this burial. The cluster of skeletal elements in the west end of the grave pit were associated with 8 red deer canine pendants (No. 92); 3 were found in the northern half of the bone cluster, while the southern half contained 5 red deer canine pendants, 2 bear claws (No. 94), and a lithic flake. Two red deer canine pendants (No. 92) were located c. 10 cm south of the left os coxa, while an additional 4 were found positioned over the right femoral midshaft. The remaining items were recovered from a small cluster located immediately north of the left femoral head. This cluster contained a lithic blade (No. 90), 2 bone points (No. 91), and 2 faunal phalanges (No. 92).

Summary of objects not directly associated with the burial:

85. Multifaceted burin on a blade 1
    L=22.90 mm, W=10.20 mm, Th=5.20 mm (cherty-coal slate)
86. Ungulate incisor 1
87. Red deer canine pendant fragment...1

Summary of objects directly associated with the burial:

88. Red deer canine pendant	1
89. Ungulate incisors	2
90. Blade with dorsal retouch on one edge L=74.69 mm, W=39.19 mm, Th=10.26 mm (jasper)	1
91. Bone point fragments 91.01 L=147.60 mm, W=11.58 mm, Th=4.35 mm (bone) 91.02 L=100.34 mm, W=9.68 mm, Th=4.52 mm (bone)	2
92. Red deer canine pendants	14
93. Ungulate incisor	1
94. Carnivore canines (bear?)	2
95. Faunal bone fragments (hare phalanges?)	2
96. Flake with retouch L=20.83 mm, W=14.51 mm, Th=4.37 mm (jasper)	1

GRAVE 7

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
5.0 x 7.0 m	2.10 x 1.20 x 0.55 m	45°/225°	2.10 x 1.10 x 0.85 m	2

Grave 7 was located in the southwestern half of the cemetery, at the base of the hill slope. The nearest graves were Grave 9, located c. 12 m to the east, and Grave 10, located c. 20 m to the northeast. Grave 7 was identified on the surface by a circular arrangement of paving stones that measured c. 3.5 m in diameter. The center of this stone circle was characterized by a shallow depression in which fewer stones were found. The depression was roughly ovoid in shape, and measured c. 2.0 m east–west by 1.0 m north–south, and 0.18 m in depth. Most of the paving stones, however, were arranged around the perimeter of this depression, while a number could be found inside it, overlaying those stones located along the ring's inner border. The majority of the stones were medium to large in size, with more stones found within the ring's southern half. These stones, generally speaking, overlaid those immediately to their north. The paving stones themselves were angular, irregularly shaped cobbles of metamorphic schist that ranged from small to large in size. Sediment throughout the excavation trench was poorly sorted medium to dark brown loamy sand, although sediment found towards the center of the arrangement was darker in color and exhibited better sorting.

After the removal of the surface paving stones, a grave pit was discovered below the north-central region of the stone paving. The location of the northern wall of the pit was well defined by approximately 20 stones positioned vertically against the pit wall. The northern and southeastern borders of the pit were delineated by similar stone arrangements, although containing fewer stones. In addition, c. 8 angular cobbles were found clustered in the center of the grave pit, adjacent to the southern wall. Sediment inside the pit was well-sorted dark brown loamy sand, similar to that found throughout the excavation trench. A bone point fragment (No. 97) was located directly west of the cluster of stones in the center of the pit, while a red deer canine pendant (No. 98) was also recovered from the center of the grave pit. Additional excavation uncovered 2 lithic disks (No. 99) from the western potion of the pit, in addition to one disk from the center (No. 99), and one lithic ring (No. 100) from the eastern portion of the grave pit. Three slab-like stones were also uncovered in the east half of the pit; these overlaid the tibiae of two individuals interred beneath.

Grave 7 housed the incomplete remains of two adult individuals of undetermined sex. The burials were laid parallel to each other in southwest–northeast orientations, with Burial 7-1 in the southern half of the pit and Burial 7-2 in the north. The body positions of both interments were extended and supine. The lower limbs of Burial 7-1 were positioned at an acute angle to each other, nearly touching at the ankles, while those of Burial 7-2 were parallel to each other. Pedal elements of both individuals were found in anatomical position, although somewhat disarticulated. The axial and upper appendicular skeletons of both individuals were heavily fragmented, and scattered into three clusters of commingled skeletal elements in the western end of the grave pit. The first cluster, located in the southwestern corner of the pit, contained a number of rib fragments and a left scapula. The second cluster, located c. 0.40 cm to the north, was composed of a left ulna, and fragments of vertebrae, ribs, and an os coxa. The third cluster, found immediately to the northeast of the second cluster, contained a number of vertebral fragments, manual phalanges, and additional rib fragments. A complete frontal bone, associated with a right parietal, was found resting on a paving stone immediately south of the right tibia of Burial 7-1. Other elements of the crania, both mandibles, humeri, most of the os coxae, and most manual elements were entirely missing. Overall, the natural preservation of the bones was poor, and the skeletal inventory was only partially complete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre.

A number of artifacts were found intermixed with the disarticulated clusters of human bone. As such, they could not be directly associated with either burial. These included a boar tusk pendant fragment (No. 101) and a red deer canine pendant (No. 102). The former was located c. 0.50 m from both the southern and western pit walls, while the latter was found c. 0.40 m to the east. A bone point (No. 103) was found in two fragments, the first c. 15 cm to the northeast of the os coxa found in bone cluster 2, while the second was found c. 20 cm to the to the north, within the third human bone cluster. A perforated bone point (No. 119a) was found among second cluster of bones.

A markedly greater quantity of artifacts was associated with Burial 7-2, as they were all located adjacent to the northern wall of the grave pit, arranged parallel to Burial 7-2. The majority of objects were found within a cluster located c. 0.50 m from the western wall of the pit. This group included 2 bone point fragments (No. 105), a leaf-shaped bifacial knife (No. 109), 4 sub-triangular arrowheads with concave bases (No. 110), a sub-triangular arrowhead with a slightly concave base (No. 111), 3 sub-triangular arrowheads with straight bases, (No. 112), a side scraper on a blade (No. 112a), 2 sub-triangular arrowheads with convex bases (No. 113), 3 leaf-shaped arrowheads with slightly convex bases (No. 114), 2 leaf-shaped arrowheads with straight bases (No. 115), 2 arrowheads with slightly concave bases and denticulate retouch (No. 116), a sub-triangular arrowhead with a concave base (No. 117), and an arrowhead fragment (No. 118). A copper knife with rounded ends (No. 108) was found c. 15 cm to the southeast of the lithic cache. An antler fishhook shank (No. 104) was recovered c. 20 cm to the north east of the lithic cache, while 2 bone points broken into eight fragments (No. 107) were located c. 10 cm to the northeast of the fishhook shank, arranged adjacent and parallel to the grave pit's northern margin.

Summary of objects not directly associated with either burial:

97. Bone point fragment 1

    L=61.68 mm, W=10.39 mm, Th=5.81 mm (bone)

98. Red deer canine pendant 1

98a. Stone with 7 depressions arranged in 3 rows on surface 1

    L=170.0*, W=151.0*, Th=40.18 mm (?)

99. Disks 3

    99.01 Outside ∅=14.06 mm, W=6.07 mm, Th=3.27 mm, Aperture □=2.48 mm (aragonite)

    99.02 Outside ∅=13.08 mm, W=5.64 mm, Th=3.34 mm, Aperture □=2.54 mm (aragonite)

    99.03 Outside ∅=9.25 mm, W=3.68 mm, Th=3.18 mm, Aperture □=2.43 mm (aragonite)

100. Ring 1

    Outside ∅==15.17 mm, W=5.49 mm, Th=3.78 mm, Aperture □=4.15 (white nephrite)

Summary of objects directly associated with either burial 7-1 or 7-2:

101. Boar tusk pendant fragment 1

L=71.08 mm, W=19.72 mm, 4.77 mm (tusk)

102. Red deer canine pendant 1

106. Bone point fragment with notches 1

L=45.84 mm, W=11.58 mm, Th=5.97 mm

119. Leaf-shaped arrowhead 1

L=m.d., W=m.d., Th=m.d. (jasper)

119a. Bone point with perforation 1

L=236.0* mm, W=14.71 mm, Th=9.14 mm, Aperture □=3.85 mm

103. Bone point fragment with lateral spur at base 1

L=124.17 mm, W=13.88 mm, Th=6.43 mm (bone)

103a. Perforator with elongated point 1

L=32.54 mm, W=6.35 mm, Th=3.15 mm (jasper)

Summary of objects directly associated with burial 7-2:

104. Fishhook shank with perforation for composite barb 1

L=47.09 mm, W=11.27 mm, Th=8.01 mm, Aperture □=3.00 mm (antler)

107. Eight fragments of 2 bone points 2

108. Copper knife with rounded ends 1

L=47.72 mm, W=13.65 mm, Th=0.92 mm (copper)

Cluster 1

105. Bone point fragments 2

105.01 L=31.47 mm, W=8.35 mm, Th=3.52 mm (bone)

105.02 L=m.d., W=m.d., Th=m.d. (bone)

109. Leaf-shaped bifacial knife 1

L=67.69 mm, W=32.11 mm, Th=6.57 mm (jasper)

110. Sub-triangular arrowheads with concave bases 4

110.01 L=25.53 mm, W=12.29 mm, Th=3.16 mm (coal-based siliceous slate)

110.02 L=24.96 mm, W=12.57 mm, Th=2.66 mm (coal-based siliceous slate)

110.03 L=31.37 mm, W=13.10 mm, Th=4.31 mm (coal-based siliceous slate)

110.04 L=26.41 mm, W=12.45 mm, Th=2.87 mm (coal-based siliceous slate)

111. Sub-triangular arrowhead with slightly concave base 1

L=28.77 mm, W=15.68 mm, Th=3.79 mm (jasper)

112. Sub-triangular arrowheads with straight bases 3

112.01 L=21.84 mm, W=14.08 mm, Th=3.66 mm (jasper)

112.02 L=17.83 mm, W=12.84 mm, Th=4.19 mm (jasper)

112.03 L=17.84 mm, W=11.30 mm, Th=3.52 mm (jasper)

112a. Side scraper on a blade..1

L=44.76 mm, W=19.41 mm, Th=7.07 mm (flint)

113. Sub-triangular arrowheads with convex bases...2

113.01 L=22.77 mm, W=12.64 mm, Th=3.56 mm (jasper)

113.02 L=16.70 mm, W=13.38 mm, Th=4.45 mm (jasper)

114. Leaf-shaped arrowheads with slightly convex bases 3

114.01 L=20.48 mm, W=12.01 mm, Th=3.35 mm (jasper)

114.02 L=21.25 mm, W=11.84 mm, Th=3.44 mm (jasper)

114.03 L=24.92 mm, W=11.12 mm, Th=3.98 mm (cherty coal-based slate)

115. Leaf-shaped arrowheads with straight bases..2

115.01 L=22.28 mm, W=10.11 mm, Th=2.87 mm (jasper)

115.02 L=17.13 mm, W=11.21 mm, Th=3.63 mm (jasper)

116. Arrowheads with slightly concave bases and denticulate retouch..........................2

116.01 L=20.69 mm, W=9.77 mm, Th=2.88 mm (jasper)

116.02 L=20.50 mm, W=9.78 mm, Th=2.77 mm (jasper)

117. Sub-triangular arrowhead with concave base 1

L=15.79 mm, W=10.44 mm, Th=3.94 mm (quartz)

118. Arrowhead fragment 1

L=13.70 mm, W=9.57 mm, Th=2.20 mm (cherty coal-based slate)

GRAVE 8

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
m.d.	2.00 x 0.80 x 0.50 m	45°/225°	m.d.	1

A. Kharinskii excavated Grave 8 in 1994; portions of the following description are based on details provided by Sosnovskaia (1996).

Grave 8 was located in the southwestern potion of the cemetery, c. 5 m upslope from the hill's base. The nearest graves were Grave 5, located c. 15 m to the southwest, and Grave 7, located c. 15 m to the northeast. Grave 8 was identified on the surface by a circular ring of paving stones, which measured c. 4.5 m in diameter. An area devoid of stones was found in the western portion of the ring's center. Stones that composed the ring were generally metamorphic schist, and varied in size from small to large. A blade fragment was found in the central portion of the grave pit's western half, while an arrowhead was located to the southeast of the grave pit. A pottery fragment was found to the east of this. In addition, a semi-circular ring of charcoal staining was observed to the east of the grave pit.

Grave 8 contained the remains of a male aged 30–45 years. The burial was found in an extended supine position, with arms arranged parallel to the body. Preservation of skeletal material was poor.

A number of items were recovered from this grave. A cluster of 10 arrowheads was found immediately north of the left hand, while an additional arrowhead was recovered from the left leg area. Two more arrowheads were found adjacent to the right foot.

Summary of objects not directly associated with the burial:

8.01. Pottery fragment with smooth walls 1
  L=m.d., W=m.d., Th=m.d
8.02 Blade fragment 1

L=m.d., W=m.d., Th=m.d. (quartzite)

8.03 Arrowhead..1

L=m.d., W=m.d., Th=m.d. (flint)

Summary of objects directly associated with the burial:

8.04 Arrowheads..10

8.04.01–8.04.10 L=m.d., W=m.d., Th=m.d. (kaolinite)

8.05 Arrowhead..1

L=m.d., W=m.d., Th=m.d. (kaolinite)

8.06 Arrowheads..2

8.06.01 L=m.d., W=m.d., Th=m.d. (quartzite)

8.06.02 L=m.d., W=m.d., Th=m.d. (quartzite)

GRAVE 9

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
6.0 x 5.0 m	2.10 x 0.85 x 0.60 m	60°/240°	1.80 x 0.90 x 0.75 m	1

Grave 9 was located in the central portion of the cemetery, at the base of the hill slope. The nearest graves were Grave 7, located c. 12 m to the east, and Feature 11, located c. 10 m to the northeast. Grave 9 was identified on the surface by an ovoid ring of paving stones that measured c. 4.0 m west–east by c. 3.5 m north–south. The southern and northeastern portions of the ring were well-defined, containing a large number of stones and measuring c. 1.0 m wide. The east and northwest portions were incomplete, however, with only a few stones present. The center of the ring was generally devoid of stones, although approximately 12 stones were located in a small cluster in the center of this open area, while another 5 were scattered through western half. A few stones in the ring's internal perimeter overlaid those closer to the outer perimeter. The stones were generally angular, irregularly shaped cobbles of metamorphic schist that varied from small to large; most, however, were small in size. Sediment within the excavation trench was poorly sorted dark brown loamy sand, but that in the ring's center was well-sorted.

After the surface stones were removed, a grave pit was found below the northern half of the ring's center. The pit boundaries were delineated by the presence of darker, finer sediment within the grave pit, as well as four vertically oriented slab-like stones arranged along the northeastern (1), northern (2), and northwestern (1) walls. In addition, 8 stones were found scattered in an apparently random pattern on the floor of the grave pit. A lithic arrowhead (No. 120), associated with several unidentified diaphysis fragments, was located c. 20 cm from the center of the grave pit's southern wall. A portion of an ungulate maxilla (No. 121) was found c. 5 cm to the northwest of this arrowhead, though c. 10 cm deeper. A prismatic blade fragment (No. 122) was uncovered from outside the grave pit, c. 10 cm to the southeast of a cluster of small cobbles east of the center of the grave pit's southern border. A prismatic blade fragment (No. 122) was found in the center of the grave pit's western sector.

Grave 9 contained the partial remains of an adult whose sex could not be determined. None of the skeletal elements recovered from this grave were found in anatomical position, and were scattered horizontally and vertically throughout the grave, making the original burial position impossible to determine. The left femur was found adjacent and parallel to the northeastern wall of the grave pit, with its anterior surface down and proximal end pointing to the pit's west corner. The left femur was located immediately to the south, arranged parallel to the right femur, with its anterior side facing up and proximal end towards the east of the grave pit. The right fibula was found adjacent and parallel to the grave pit's north wall, c. 15 cm west-southwest from the right femur's proximal end. Further excavation uncovered the left tibia in the central portion of the grave, adjacent and parallel to of the northern wall. The tibia was oriented with its proximal end towards the west, and its anterior surface facing up. The proximal end of the left fibula was found touching the distal end of the left tibia, but aligned with its long axis aligned northwest–southeast. The left navicular, left second metatarsal, left talus, left cuboid, left third cuneiform and a number of additional fragments were found scattered around the left tibia and fibula. The proximal end of the right tibia was found immediately adjacent to the grave pit's western-most wall. Additional excavation revealed the distal portion of the right femur resting near to the western half of the grave pit's southern wall, as well as six rib fragments scattered throughout the southwestern half of the pit. A single tarsal was recovered from the middle of the northwestern pit wall. With the exception of six rib fragments, only elements of the lower appendicular skeleton were recovered from Grave 9. Overall, the natural preservation of the bones was fair, although the skeletal inventory was incomplete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre.

A number of objects were found in direct association with this burial. A lithic flake (No. 123) was found c. 10 cm north of the distal end of the left tibia; a bone harpoon fragment (No. 125) was recovered from the southeastern corner of the grave pit, while a conjoining fragment was found in the central area of the grave pit's southwestern quadrant. Two lithic flakes (No. 132) were recovered from the area adjacent to the central portion of the grave pit's south wall Two ungulate incisors (No. 127) were also recovered from this grave; one incisor was embedded in the upper portion of the southwestern grave pit wall, while the second was found in the central region of the pit's western quarter. This tooth was part of a loose cluster of materials that also included two lithic arrowheads (Nos. 129.02, 131.02) and a lithic flake (No. 132.03). Approximately 30 cm to the north of this cluster, a single arrowhead with denticulate retouch (No. 130) was found. A white nephrite ring (No. 128) was located directly northwest of this arrowhead, resting against the northwestern wall of the grave pit. Further excavation uncovered the handle of a bone spoon (No. 124) from the base of the pit's western wall. The bowl of the spoon was recovered from the previous excavation level, in the central area of the pit's western quarter. A bone needle (No. 126) was also recovered from this area. A small bifacial knife (No. 133) was recovered from the wall of the western corner of the grave pit, while the central portion of the pit's western quarter produced a cluster of 4 lithic flakes (No. 132).

Summary of objects not directly associated with the burial:

120. Sub-triangular arrowhead fragment with straight base 1
L=14.72 mm, W=11.46 mm, Th=3.80 mm (kaolinite)
121. Faunal maxilla fragment 1
L=76.94 mm, W=19.82 mm, Th=21.82 mm (bone)
122. Prismatic blade fragments...2
122.01 L=13.69 mm, W=7.45 mm, Th=1.49 mm (cherty–coal slate)
122.02 L=15.40 mm, 7.61 mm, Th=2.42 mm (microquartzite)

Summary of objects directly associated with the burial:

123. Flake...1
L=35.30 mm, W=18.72 mm, Th=11.23 mm (microquartzite)
124. Spoon 1
L=146.80 mm, W=49.56 mm, Th=5.43 mm (bone)
125. Harpoon fragment 1
L=101.02 mm, W=12.10 mm, Th=5.39 mm (bone)
126. Needle 1
L=38.81 mm, W=3.17 mm, Th=2.71 mm (bone/antler)
127. Faunal incisors 2
127.01 L=35.06 mm, W=13.02 mm, Th=8.57 mm (tooth)
127.02 L=26.40 mm, W=5.47 mm, Th=6.30 mm (tooth)
128. Ring..1
Outside ∅=18.26 mm, W=6.09 mm, Th=4.40 mm, Aperture □=6.00 mm (white nephrite)
129. Sub-triangular arrowheads with straight bases 2
129.01 L=15.31 mm, W=13.09 mm, Th=3.86 mm (kaolinite)
129.02 L=12.56 mm, W=12.53 mm, Th=3.30 (kaolinite)

130. Sub-triangular arrowhead with round base and denticulate retouch......................1
L=28.66 mm, W=12.23 mm, Th=2.03 mm (kaolinite)

131. Sub-triangular arrowheads with straight bases 2
131.01 L=19.91 mm, W=11.94 mm, Th=4.12 mm (jasper)
131.02 L=17.30 mm, W=13.05 mm, Th=3.67 mm (jasper)

132. Flakes 7
132.01 L=39.14 mm, W=17.36 mm, Th=7.14 mm (kaolinite)
132.02 L=25.25 mm, W=20.29 mm, Th=7.35 mm (kaolinite)
132.03 L=19.83 mm, W=17.42 mm, Th=7.18 mm (kaolinite)
132.04 L=17.32 mm, W=9.15 mm, Th=6.18 mm (kaolinite)
132.05 L=13.47 mm, W=12.13 mm, Th=4.83 mm (kaolinite)
132.06 L=13.03 mm, W=9.73 mm, Th=4.63 mm (kaolinite)
132.07 L=9.42 mm, W=8.34 mm, Th=4.07 mm (kaolinite)

133. Leaf-shaped biface..1
L=60.35 mm, W=15.61 mm, Th=5.54 mm (jasper)

GRAVE 10

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
3.0 x 4.0 m	1.65 x 0.55 x 0.45 m	55°/235°	1.80 x 0.80 x 0.55 m	1

Grave 10 was located in the central portion of the cemetery, approximately 5.0 m upslope from the hill's base. The nearest graves were Feature 11, located c. 6 m to the south, and Grave 13, located c. 10 m to the southeast. Grave 10 was identified on the surface by a compact oval of paving stones, which measured c. 1.90 m northeast–southwest by 1.10 m northwest–southeast. Approximately 10 additional stones were scattered to the south of the stone arrangement, within a c. 1.0 m wide area. Stones composing the surface arrangement were generally angular, irregular-shaped cobbles of metamorphic schist that varied in size from small to large. The majority of stones were medium in size, and few were slab-like in shape. Sediment throughout the excavation trench was poorly-sorted dark brown loamy sand.

After the removal of the surface pavings, a grave pit was discovered directly below the surface paving stone arrangement. Fifteen small to medium-sized stones were found in a tight cluster covering the grave pit. Stones within this cluster extended into the pit to a depth of c. 30 cm below the modern surface. The grave pit itself was difficult to distinguish based on the comparison of sediments inside and outside the grave pit. Sediment both inside and outside the grave pit was dark brown loamy sand, however that surrounding the pit contained a relatively higher proportion of gravel. A green nephrite knife (No. 134) was found c. 10 cm northwest of the grave pit's southwestern margin, while a faunal tooth fragment (No. 135) was found on the pit's southeastern margin.

Grave 10 housed the near complete remains of a probable male approximately 15–25 years old, nearly all of which were found articulated in anatomical location. The body position was extended and supine, with the lower limbs parallel to each other. The left arm lay extended at the individual's side, while the right arm was flexed at the elbow, with the hand resting immediately below the rib cage. The head was rotated slightly down slope, to the individual's right. The right manual elements were somewhat disarticulated and scattered throughout the pelvic region, and nearly all pedal elements were missing. Overall, however, the natural preservation of the skeletal material was good, and the skeletal inventory was nearly complete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre.

The vast majority of items recovered from Grave 10 were contained within a large cluster located directly to the northwest of the cranium and left shoulder. Items within this cluster included a bone/antler harpoon (No. 136), a bone/antler harpoon fragment (No. 137), 4 harpoons with symmetrical barbs (No. 138; 2 of these were stolen during the course of excavation), 3 bone points (No. 139), 3 bone needle fragments (No. 140), an antler point with denticulate notches (No. 141), a seal mandible fragment (No. 142), 3 bear claws (No. 143), a needle box made from a bird long bone (No. 144) containing a copper needle (No. 144a), a curved bone/antler point (No. 145), a bone/antler point fragment (No. 146), a bone composite fishhook shank No. 147), a bone plate/blade with a sharpened end (No. 148), 3 bone fishhook shanks with perforations (No. 149), 2 bone composite fishhook shanks with copper barbs inserted at base (No. 150), a fragment of a copper knife (No. 151), 2 bone fishhook fragments of with notches (No. 152), 4 marble disks (No. 153), a lithic bifacial insert (No. 154), a leaf-shaped arrowhead with a notched convex base (No. 155), 2 sub-triangular arrowheads with convex bases (No. 156), 2 sub-triangular arrowheads with straight bases (No. 157), 3 sub-triangular arrowheads with slightly convex bases (No. 158), 3 sub-triangular arrowheads with convex bases (No. 159), an arrowhead with a straight base (No. 160), a fragment of a lithic tool (No. 161), a blade with dorsal retouch on one edge (No. 162), a blade with dorsal retouch on both edges (No. 163), 4 lithic blades (No. 164), 2 lithic flakes (No. 165), and 2 graphite fragments (No. 166). The bone points and harpoons within this cluster were generally arranged parallel to each other, along a northeast–southwest axis, parallel to the northwestern wall of the grave pit. Two marble disks (No. 153) were found on the skull itself, one resting on the superior portion of the temporal bone, and the other on the left portion of the individual's frontal bone. An additional seal mandible fragment (No. 167) was located directly southwest of the cranium, and was associated with a bone/antler spoon fragment (No. 169). An additional bone/antler point fragment (No. 168) was recovered c. 10 cm south of the cranium.

Summary of objects not directly associated with the burial:

134. Knife 1
    L=27.63 mm, W=13.30 mm, Th=2.35 mm (green nephrite)
135. Faunal tooth fragment..1
    L=24.00 mm, W=5.88 mm, Th=3.67 mm (tooth)

Summary of objects directly associated with the burial:

136. Harpoon (leister?) 1

L=182.0* mm, W=8.27 mm, Th=4.73 mm (bone/antler)

137. Harpoon fragment 1

L=119.89 mm, W=10.13 mm, Th=7.01 mm (bone/antler)

138. Harpoons with symmetrical barbs and spurs at bases..4

138.01 L=117.31 mm, W=8.93 mm, Th=5.67 mm (bone/antler)

138.02 L=216.00* mm, W=11.48 mm, Th=6.53 mm (bone/antler)

138.03 L=m.d., W=m.d., Th=m.d. (bone/antler)

138.03 L=m.d., W=m.d., Th=m.d. (bone/antler)

139. Bone points 3

139.01 L=188.0* mm, W=9.79 mm, Th=5.43 mm (bone)

139.02 L=126.39 mm, W=9.48 mm, Th=5.54 mm (bone)

139.03 L=226.0* mm, W=15.31 mm, Th=6.93 mm (bone)

140. Needle fragments 3

140.01 L=77.25 mm, W=3.88 mm, Th=2.96 mm (bone)

140.02 L=78.94 mm, W=3.41 mm, Th=2.33 mm (bone)

140.03 L=62.08 mm, W=3.55 mm, Th=2.60 mm (bone)

141. Antler point with denticulate notches on base 1

L=138.46 mm, W=13.38 mm, Th=5.87 mm (antler)

142. Seal mandible fragment 1

L=33.13 mm, W=13.17 mm, Th=4.04 mm (bone)

143. Bear claws...3

143.01 L=33.91 mm, W=9.14 mm, Th=7.21 mm (claw)

143.02 L=20.15 mm, W=9.27 mm, Th=5.06 mm (claw)

143.03 L=16.01 mm, W=7.89 mm, Th=3.42 mm (claw)

144. Needle box made of bird long bone with 2 copper needles inside 1

L=135.14 mm, W=5.75 mm, Th=5.84 mm (bone)

144a. Copper needle...1

L=46.20 mm, W=2.26 mm, Th=1.48 mm (copper)

145. Curved bone/antler point..1

L=154.0* mm, W=14.11, Th=8.43 mm (bone/antler)

146. Bone/antler point fragment 1

L=30.84 mm, W=9.29 mm, Th=5.60 mm (bone/antler)

147. Bone composite fishhook shank 1

L=81.97 mm. W=14.65 mm, Th=6.35 mm (bone/antler)

148. Bone plate/blade with one sharpened end...1

L=118.63 mm, W=15.33 mm, Th=4.80 mm (bone)

149. Bone composite fishhook shanks with perforation at the base 3

149.01 L=42.47 mm, W=8.88 mm, Th=6.34 mm (bone)

149.02 L=39.12 mm, W=10.00 mm, Th=7.80 mm (bone)

149.03 L=34.74 mm, W=8.88 mm, Th=7.70 mm (bone)

150. Bone composite fishhook shanks with copper barbs inserted at base 2

150.01 L=46.71 mm, W=9.01 mm, Th=6.58 mm (bone, copper)

150.02 L=36.86 mm, W=7.70 mm, Th=4.17 mm (bone, copper)

151. Copper knife fragment 1

L=15.49 mm, W=7.30 mm, Th=0.67 mm (copper)

152. Bone fishhook fragments of with notches for line fastening 2

152.01 L=47.85 mm, W=4.62 mm, Th=4.29 mm (bone)

152.02 L=15.02 mm, W=7.09 mm, Th=4.71 mm (bone)

153. Disks 6

153.01 Outside ∅=3.99 mm, W=5.80 mm, Th=4.24 mm, Aperture □=3.66 mm (marble)

153.02 Outside ∅=15.03 mm, W=6.69 mm, Th=3.79 mm, Aperture □=3.75 mm (marble)

153.03 Outside ∅=15.75 mm, W=6.64 mm, Th=3.03 mm, Aperture □=2.38 mm (marble)

153.04 Outside ∅=17.26 mm, W=6.48 mm, Th=4.36 mm, Aperture □=3.86 mm (marble)

153.05 Outside ∅=17.35 mm, W=6.80 mm, Th=2.93 mm, Aperture □=4.00 mm (marble)

153.06 Outside ∅=19.48 mm, W=9.91 mm, Th=3.48 mm, Aperture □=2.73 mm (marble)

154. Bifacial insert 1

L=36.10 mm, W=15.56 mm, Th=3.49 mm (jasper)

155. Leaf-shaped arrowhead with notched convex base 1

L=25.72 mm, W=19.14 mm, Th=6.08 mm (jasper)

156. Sub-triangular arrowheads with convex bases...2

156.01 L=27.15 mm, W=14.86 mm, Th=3.98 mm (kaolinite)

156.02 L=23.66 mm, W=15.39 mm, Th=4.23 mm (kaolinite)

157. Sub-triangular arrowheads with straight bases 2

157.01 L=18.54 mm, W=11.00 mm, Th=3.41 mm (kaolinite)

157.02 L=16.44 mm, W=12.37 mm, Th=3.46 mm (kaolinite)

158. Sub-triangular arrowheads with slightly convex bases...3

158.01 L=18.41 mm, W=10.57 mm, Th=3.53 mm (kaolinite)

158.02 L=14.54 mm, W=10.72 mm, Th=2.84 mm (kaolinite)

158.03 L=16.55 mm, W=11.07 mm, Th=3.61 mm (kaolinite)

159. Sub-triangular arrowheads with convex bases...3

159.01 L=17.33 mm, W=13.49 mm, Th=3.57 mm (kaolinite)

159.02 L=20.36 mm, W=12.89 mm, Th=3.61 mm (kaolinite)

159.03 L=21.18 mm, W=13.93 mm, Th=3.48 mm (kaolinite)

160. Arrowhead with straight base 1

L=13.37 mm, W=8.67 mm, Th=3.01 mm (kaolinite)

161. Lithic tool fragment 1

L=27.24 mm, W=17.01 mm, Th=5.31 mm (jasper)

162. Blade with dorsal retouch on one edge 1

L=15.85 mm, W=9.11 mm, Th=2.44 mm (jasper)

163. Blade with dorsal retouch on both edges 1

L=33.82 mm, W=17.14 mm, Th=4.27 mm (jasper)

164. Blades..4

164.01 L=15.03 mm, W=12.36 mm, Th=1.15 mm (jasper)

164.02 L=15.55 mm, W=10.06 mm, Th=2.06 mm (jasper)

164.03 L=22.60 mm, W=7.30 mm, Th=1.60 mm (jasper)

164.04 L=19.70 mm, W=11.00 mm, Th=1.10 mm (jasper)

165. Flakes..2

165.01 L=12.46 mm, W=8.52 mm, Th=1.67 mm (jasper)

165.02 L=13.77 mm, W=11.07 mm, Th=1.17 mm (jasper)

166. Graphite fragments..2

166.01 L=25.62 mm, W=13.36 mm, Th=11.08 mm (graphite)

166.02 L=11.75 mm, W=5.90 mm, Th=4.98 mm (graphite)

167. Seal mandible fragment...1

L=79.82 mm, W=23.52 mm, Th=7.06 mm (bone)

168. Bone/antler point fragment..1

L=97.16 mm, W=9.51 mm, Th=6.46 mm (bone/antler)

169. Bone/antler spoon fragment...1

L=159.0* mm, W=26.01 mm, Th=6.46 mm (bone/antler)

GRAVE 12

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
5.0 x 5.0 m	2.20 x 0.65 x 0.50 m	80º/260º	2.20 x 1.00 x 0.85 m	1

Grave 12 was located in the southwestern portion of the cemetery at the base of the hill slope. The nearest graves were Grave 1, located c. 10 m to the west-southwest, and Grave 2, located c. 10 m to the southeast. Grave 12 was identified on the surface by a circular ring of paving stones that measured c. 3.0 m north–south by c. 3.5 m east–west. The majority of stones were located in the eastern half of the ring, the body of which measured c. 1.0 m at its widest point. The center of the ring was generally empty, and measured c. 1.5 m east–west by c. 1.0 m north–south. Additional stones were scattered in an apparently random fashion around the eastern perimeter of the arrangement through a c. 1.0 m wide area. The ring was formed by cobbles of metamorphic schist that were angular in shape and varied in size from small to medium; these were surrounded by a sediment matrix of dark brown, poorly-sorted loamy sand, with darker sediment found within the ring's center. Archaeological finds included an anthropomorphic fishhook shank (No. 175) recovered adjacent to the inner margin of the ring's southwestern portion, as well as a blade (No. 172) located c. 0.60 m to the north of the fishhook. A number of items were also recovered from the periphery of the stone ring. A scraper (No. 173) was recovered adjacent to the outer margin of the ring's southwestern portion, a ground stone flaker (No. 174) was positioned immediately south of the ring's south margin, a nephrite axe (No. 171) was located c. 50 cm east of the ring's central eastern edge, while a scraper (No. 173) was located c. 20 cm to the east of the ring's northeast corner.

After the removal of the surface pavings, a large cluster of stones that measured c. 2.5 m east–west by 1.4 m north–south was encountered below the northeast portion of the stone ring. Stones located towards the northern margin of this cluster generally overlaid the stones to the south, which reached deeper into the ground. Approximately 15 additional stones were scattered c. 30 cm to the west of the main cluster, while an additional 20 stones were found in a loose cluster to the south.

Additional excavation revealed a grave pit beneath the larger cluster of stones. Stones bordered nearly the entire northern margin of the pit, while a number of others overlaid the southeastern half of the pit. Some of these were positioned horizontally. Sediment within the grave pit was generally darker and finer sediment than that surrounding the pit. An end scraper (No. 178) was located adjacent to the stones covering the grave pit, while a green nephrite ring (No. 177) was located along the pit's north central margin. An aragonite disk fragment (No. 179) was located immediately north of a few medium-sized stones that were adjacent to the grave pit's north-central margin. An aragonite disk fragment (No. 180) was recovered from inside the grave pit's southwestern perimeter, while a lithic perforator (No. 181) was found above the pit's west-central sector.

Grave 12 housed the incomplete remains of an adult of undetermined sex. According to the location of the lower limbs, the burial position was extended and supine; the positions of the individual's hands, however, were impossible to determine. The right os coxa, femur, tibia, fibula and patella were all articulated and found in their anatomical positions, as were the left tibia, fibula, and patella were also found in their anatomical positions. Elements of the right foot were generally articulated, while elements of the left foot were scattered throughout the southeastern end of the grave pit. The left os coxa, left femur, sacrum, and elements belonging to the upper skeleton were entirely missing from Grave 12, with the small exception of two unidentified rib fragments. Overall, the natural preservation of the bones was fair, but the skeletal inventory was only partially complete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre.

A number of objects were found in direct association with this burial. Most of these formed a cluster located directly to the north of individual's pelvic region, and were associated with fragments of birch bark (No. 198). Archaeological materials associated with this birch bark included a bone point fragment (No. 182), a bone point (No. 185), a bone needle fragment (No. 186), two red deer canine pendants (No. 188), an unidentified faunal long-bone fragment (No. 190), a semi-lunar nephrite pendant (No. 191) and a lithic blade (No. 192). From below the birch bark fragments, 3 bone needle fragments (No. 183), a bone awl (No. 184), an unidentified faunal mandible fragment (No. 187), 2 red deer canine pendants (No. 188), 10 hare phalanges (No. 189), 9 white nephrite disks (No. 193), a composite fish hook shank (No. 194), 5 cylindrical beads (No. 195), a copper tube (No. 196), and a copper fragment (No. 197) were recovered.

Summary of objects not directly associated with the burial:

171. Axe with sharpened butt 1

L=48.74 mm, W=30.94 mm, Th=9.24 mm (green nephrite)

172. Blade 1

L=42.15 mm, W=27.22 mm, Th=3.54 mm (jasper)

173. End-scrapers on blades with retouched edges 2

173.01 L=56.24 mm, W=33.80 mm, Th=5.37 mm (jasper)

173.02 L=51.29 mm, W=30.11 mm, Th=4.67 mm (jasper)

174. Pressure flaker..1

L=147.01 mm, W=25.63 mm, Th=12.62 mm (sandstone)

175. Anthropomorphic composite fishhook with notches and perforation....................1

L=29.47 mm, W=13.22 mm, Th=7.98 mm (Talc)

176. End scraper on a blade 1

L=30.93 mm, W=26.90 mm, Th=9.83 mm (jasper)

177. Ring...1

Outside ∅=39.82 mm, W=4.64 mm, Th=3.66 mm, Inside ∅=30.11 mm (green nephrite)

178. End scraper on blade with retouch on both edges...1

L=70.37 mm, W=32.28 mm, Th=9.98 mm (jasper)

179. Disk 1

Outside ∅=46.14 mm, W=21.99 mm, Th=5.07 mm, Inside ∅=8.07 mm (aragonite)

180. Disk fragment..1

Outside ∅=36.48 mm, W=13.49 mm, Th=3.61 mm (aragonite)

181. Elongated perforator with retouch on both edges 1

L=49.03 mm, W=9.33 mm, Th=3.47 mm (jasper)

Summary of objects directly associated with the burial:

182. Bone point fragment 1

L=138.56 mm, W=16.35 mm, Th=6.30 mm (bone)

183. Bone needle fragments...3

183.01 L=33.39 mm, W=1.95 mm, Th=1.63 mm (bone)

183.02 L=43.59 mm, W=2.07 mm, Th=1.65 mm (bone)

183.03 L=41.52 mm, W=1.76 mm, Th=1.41 mm (bone)

184. Bone awl stained by copper 1

L=74.62 mm, W=3.22 mm, Th=1.59 mm (bone)

185. Bone arrowhead with flattened base..1

L=53.94 mm, W=6.49 mm, Th=3.84 mm (bone)

186. Bone needle fragment stained by copper..1

L=84.67 mm, W=3.36 mm, Th=2.10 mm (bone)

187. Faunal mandible stained by copper (unidentified)...1

L=50.88 mm, W=11.20 mm, Th=3.66 mm (bone)

188. Red deer canine pendants..4

189. Hare phalanges...10

190. Faunal long bone fragment (unidentified) 1

L=91.16 mm, W=5.19 mm, Th=3.87 mm (bone)

191. Semi-lunar pendant 1

L=114.71 mm W=53.74 mm, Th=5.84 mm (green nephrite)

192. Blade with dorsal retouch on both edges 1

L=58.80 mm, W=30.21 mm, Th=6.35 mm (jasper)

193. Disks 9

193.01 Outside ∅=13.30 mm, W=5.30 mm, Th=2.73 mm, Aperture □=2.84 mm (white nephrite)

193.02 Outside ∅=15.07 mm, W=7.22 mm, Th=3.68 mm, Aperture □=2.52 mm (white nephrite)

193.03 Outside ∅=18.94 mm, W=7.17 mm, Th=4.10 mm, Aperture □=3.88 mm (white nephrite)

193.04 Outside ∅=22.13 mm, W=9.79 mm, Th=3.08 mm, Aperture □=3.47 mm (white nephrite)

193.05 Outside ∅=24.58 mm, W=10.62 mm, Th=4.57 mm, Aperture □=4.16 mm (white nephrite)

193.06 Outside ∅=28.11 mm, W=11.29 mm, Th=4.83 mm, Aperture □=4.03 mm (white nephrite)

193.07 Outside ∅=28.07 mm, W=11.51 mm, Th=3.95 mm, Aperture □=4.44 mm (white nephrite)

193.08 Outside ∅=14.59 mm, W=5.75 mm, Th=5.40 mm, Aperture □=3.79 mm (white nephrite)

193.09 Outside ∅=17.10 mm, W=6.69 mm, Th=2.96 mm, Aperture □=4.09 mm (white nephrite)

194. Anthropomorphic composite fishhook with notches for line fastening and perforation..1

L=49.50 mm, W=25.09 mm, Th=6.43 mm (aragonite)

195. Cylindrical beads 5

(aragonite)

196. Copper tube..1

L=24.74 mm, W=5.49 mm, Th=1.31 mm (copper)

197. Copper fragment 1

L=19.91 mm, W=9.48 mm, Th=6.03 mm (copper)

198. Fragments of birch bark pouch ....n/a

GRAVE 13

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
4.0 x 3.0 m	2.40 x 1.40 x 0.65 m	50°/230°	2.05 x 0.90 x 0.65 m	1

Grave 13 was located in the central portion of the cemetery, at the base of the hill slope. The nearest graves were Grave 10, located c. 7 m to the west-northwest, and Feature 11, located c. 7 m to the west-southwest. Grave 13 was identified on the surface by an ovoid ring of angular paving stones, which measured c. 3.0 m west–east by 2.0 m north–south. The majority of stones were located in the north and south sectors of the paving stone ring, which measured c. 1.0 m across. Only a few large stones delineated the ring's western and eastern edges. Most stones were medium to large in size, with the most of the largest found along the ring's outer edges. Those found nearer to the center of the ring often overlaid those located towards the periphery. The center of the ring was generally devoid of stones, and characterized by two circular openings, joined in the center. Each measured c. 1.0 m northeast–southwest by 0.75 m northwest–southeast; the combined dimensions of this area were c. 2.0 m by 0.75 m. One lithic perforator (No. 199) was recovered adjacent to the southwestern perimeter of the ring.

Following the removal of the surface pavings, only one cluster of paving stones remained. This cluster, which delineated the northern border of the grave pit, was located below the northern portion of the ring, and measured c. 2.0 northeast–southwest by c. 1.0 m northwest–southeast. Similar to the paving stones found above, the stones found along the southern perimeter of this cluster overlaid those to the north. In addition, approximately six stones were scattered c. 1.0 m the east, while an additional six were scattered to the south. The locations of these stones corresponded with the location of the eastern and western sections of the surface ring. Stones at this level were also angular cobbles, and generally medium in size. The sediment was generally dark brown loamy sand.

A number of items were recovered at this stage of excavation. A copper tube fragment (No. 200) was located adjacent to the upper edge of the pit's western tip. An end-scraper (No. 201) was located along the upper edge of the pit's southwestern corner, while a prismatic blade fragment (No. 202) was found c. 10 cm to the west of the pit's western edge. A lithic flake (No. 203) was found c. 30 cm to the south of the western portion of the grave pit's southern edge.

Grave 13 housed the near complete remains of an individual 35–45 years of age of unknown sex. The burial was interred in an extended supine position, with the hands placed over the pelvic region and legs parallel to each other. The cranium was turned slightly, to face the north. Although fragmentary, most skeletal elements were recovered with the exception of the pedal elements, which were represented only by a single first metatarsal. A number of stones remained at the burial level. Five stones were arranged in a meter long row, running north–south; the northern end of this row was located c. 20 cm west of the cranium. A cluster of 4 stones was located an additional 20 cm to the west of the end of the row. A few additional stones were found scattered beside the individual's right humerus. Overall, the natural preservation of the bones was fair, and the skeletal inventory nearly complete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre at the time of the interment.

A large number of items were directly associated with this burial. A collection of seven disks (No. 216) was positioned around the circumference of the skull, as well as above the orbits, while an additional disk (No. 220) was located on the proximal portion of the right humerus. Eight more disks (No. 221) were scattered throughout the thoracic region. A small cluster of items was recovered from the area over the left ribs. This cluster contained a nephrite axe (No. 211), 4 lithic blades (No. 212), and a leaf-shaped biface (No. 213). An abrasive fragment (No. 214) and an additional disk (No. 215) were located immediately north of the left os coxa, while one disk (No. 219) was recovered adjacent to the right os coxa, with an additional disk located c. 2.0 m to the south. A bear canine pendant was found immediately south of the right femur's midshaft, while approximately 20 cm to the south, a lithic nodule was recovered. In addition, 20 red deer canine pendants (No. 217) were found scattered throughout the thoracic and pelvic regions. A large abrasive (No. 208) was found immediately west of the cranium, in addition to 4 flakes (No. 204), which were located c. 20 cm to the southwest. A nephrite axe (No. 210) was recovered approximately 1.0 m west of the cranium.

Summary of objects not directly associated with the burial:

199. Perforator with retouch on both edges 1

L=38.14 mm, W=8.92 mm, Th=2.41 mm (jasper)

200. Copper tube (needle box) with weaved string inside 1

L=53.32 mm, W=6.70 mm, Th=0.63 mm (copper)

201. End-scraper on a blade with retouch on both edges 1

L=55.65 mm, W=19.92 mm, Th=6.60 mm (jasper)

202. Prismatic blade fragment 1

L=19.49 mm, W=10.31 mm, Th=2.83 mm (microquartzite)

203. Flake 1

L=23.03 mm, W=19.02 mm, Th=4.10 mm (microquartzite)

Summary of objects directly associated with the burial:

204. Blades 4

204.01 L=66.91 mm, W=29.69 mm, Th=8.00 mm (jasper)

204.02 L=60.85 mm, W=44.61 mm, Th=6.27 mm (jasper)

204.03 L=51.72 mm, W=39.28 mm, Th=8.58 mm (jasper)

204.04 L=62.35 mm, W=25.03 mm, Th=6.91 mm (jasper)

205. Blade with retouch on both edges 1

L=52.06 mm, W=14.88, Th=4.16 mm (jasper)

206. End-scraper on a blade 1

L=35.10 mm, W=28.50 mm, Th=7.62 mm (jasper)

207. Lithic tool 1

L=129.76 mm, W=48.08 mm, Th=7.69 mm (slate)

208. Abrasive (hone) 1

L=150.86 mm, W=41.21 mm, Th=8.40 mm (slate)

209. Nodule 1

L=105.61 mm, W=55.31 mm, Th=10.12 mm (quartzite)

210. Axe 1

L=79.97 mm, W=45.24 mm, Th=10.92 mm (green nephrite)

Cluster 1

211. Axe..1

L=50.81 mm, W=31.91 mm, Th=11.78 mm (green nephrite)

212. Blades..4

212.01 L=58.61 mm, W=32.81 mm, Th=9.14 mm (jasper)

212.02 L=40.44 mm, W=41.11 mm, Th=11.99 mm (jasper)

212.03 L=53.75 mm, W=28.18 mm, Th=9.99 mm (jasper)

212.04 L=51.90 mm, W=44.30 mm, Th=4.96 mm (jasper)

213. Leaf-shaped biface..1

L=67.79 mm, W=18.74 mm, Th=4.86 mm (jasper)

Cluster 2

214. Abrasive fragment..1

L=76.35 mm, W=28.61 mm, Th=4.22 mm (slate)

215. Disk...1

Outside ∅=15.38 m, W=6.40 mm, Th=4.58 mm, Aperture □=2.12 (aragonite)

Skull Area

216. Disks...7

216.01 Outside ∅=13.06 mm, W=5.45 mm, Th=3.89 mm, Aperture □=3.41 mm (aragonite)

216.02 Outside ∅=16.71 mm, W=6.75 mm, Th=3.40 mm, Aperture □=2.86 mm (aragonite) 216.03 Outside ∅=17.87 mm, W=7.55 mm, Th=4.02 mm, Aperture □=3.17 mm (aragonite)

216.04 Outside ∅=31.51 mm, W=14.04 mm, Th=5.58 mm, Aperture □=3.14 mm (aragonite)

216.05 Outside ∅=30.34 mm, W=12.44 mm, Th=5.32 mm, Aperture □=2.79 mm (aragonite)

216.06 Outside ∅=39.50 mm, W=17.26 mm, Th=4.73 mm, Aperture □=4.65 mm (aragonite)

216.07 Outside ∅=38.60 mm, W=17.30 mm, Th=4.33 mm, Aperture □=3.99 mm (aragonite)

Postcranial skeleton

217. Red deer canine pendants..20

218. Bear canine pendant...1

L=20.52 mm, W=19.81 mm, Th=14.09 mm (tooth)

219. Disks (from pelvic area)..2

219.01 Outside ∅=19.63 mm, W=8.19 mm, Th=4.19 mm, Aperture □=5.47 mm (aragonite)

219.02 Outside ∅=18.06 mm, W=7.63 mm, Th=3.77 mm, Aperture □=2.64 mm (aragonite)

220. Disk (from right shoulder area)..1

Outside ∅=17.26 mm, W=7.86 mm, Th=6.08 mm, Aperture □=2.67 mm (aragonite)

221. Disks (from chest area) 8

221.01 Outside ∅=10.24 mm, W=4.29 mm, Th=2.42 mm, Aperture □=2.38 mm (aragonite)

221.02 Outside ∅=10.74 mm, W=4.24 mm, Th=4.06 mm, Aperture □=2.40 mm (aragonite)

221.03 Outside ∅=13.30 mm, W=5.62 mm, Th=2.92 mm, Aperture □=2.12 mm (aragonite)

221.04 Outside ∅=14.39 mm, W=5.85 mm, Th=3.84 mm, Aperture □=2.53 mm (aragonite)

221.05 Outside ∅=14.79 mm, W=6.58 mm, Th=4.80 mm, Aperture □=2.99 mm (aragonite)

221.06 Outside ∅=19.28 mm, W=9.14 mm, Th=3.83 mm, Aperture □=2.45 mm (aragonite)

221.07 Outside ∅=22.08 mm, W=9.89 mm, Th=4.41 mm, Aperture □=3.37 mm (aragonite)

221.08 Outside ∅=22.14 mm, W=9.51 mm, Th=3.13 mm, Aperture □=3.91 mm (aragonite)

GRAVE 14

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
6.0 x 4.0 m	2.40 x 0.60 x 0.45 m	65°/245°	1.90 x 0.90 x 1.00 m	1

Grave 14 was located in the northeastern portion of the cemetery, c. 15 m upslope from the hill's base. The nearest graves were Grave 15, located c. 6 m to the northeast, and Grave 17, located c. 13 m to the southeast. Grave 14 was identified on the surface by a large number of scattered paving stones. The eastern half of the excavation trench contained an irregular circular ring of paving stones that measured c. 3.0 m in diameter, although a semi-circular area devoid of stones interrupted the western portion of the ring. The center of the ring measured c. 0.80 m in diameter. Immediately to the west of the ring, c. 30 stones were scattered in an apparently random pattern. To the west of these, in the northwestern portion of the excavation trench, a loose cluster of stones was observed that were randomly scattered throughout a c. 2.0 m by 0.80 m area. In general, stones found in the eastern half of the trench were medium to large in size, whereas those in the western half were generally small to medium in size. Sediment throughout the trench was generally poorly sorted, dark brown loamy sand, which contained an admixture of small angular pebbles.

After the surface pavings were removed, only a few scattered stones remained in the eastern half of the trench. In the northwestern corner of the trench, however, a dense concentration of stones was discovered. This concentration was ovoid in shape, and measured c. 2.5 m by 0.5 m. The long axis of the stone arrangement was aligned west-southwest–east-northeast. Further excavation revealed a grave pit below these stones, delineated by the presence of dark brown loamy sand. The remainder of the trench contained yellow, poorly sorted sediments. A disk (No. 222) was recovered c. 1.5 m to the east of the paving stone cluster.

Grave 14 contained the remains of a female 20–29 years of age. Interestingly, skeletal remains from this interment were semi-articulated. The cranium was recovered from the approximate center of the pit, with the top of the cranial vault facing upwards. Immediately north of the cranium, the left femur, tibia, and fibula were found articulated oriented along the west–east axis in the center of the grave pit, however the anterior surfaces faced the pit floor. The left femur and tibia were articulated and positioned immediately north of and parallel to the right leg. The lateral surfaces of the left femur and tibia faced upwards. The left os coxa was found between the knee areas of the left and right legs. The right ulna and radius were articulated, and located adjacent to the proximal end of the right tibia, positioned along a northwest–southeast axis. The left ulna and radius were positioned beneath the proximal end of the right femur. The left fibula was located adjacent to the distal end of the right tibia, oriented along a west–east axis. A disarticulated cluster of bones was located immediately west of the proximal end of the right femur. This cluster contained ribs and rib fragments, humeri, clavicles, scapulae, and vertebrae. The northeast end of the grave pit contained a single vertebra as well as some pedal elements. Right manual elements were generally scattered around the southwest portion of the pit. Nearly all skeletal elements were recovered, however most elements belonging to the left hand and both feet were missing. Overall, the natural preservation of the bones was good, and the skeletal inventory nearly complete. None of the bones displayed evidence of fire use, however most skeletal elements, as well as the grave pit floor and sediment matrix, exhibited staining from the use of red ochre.

Only a few items were recovered from Grave 14. These included one copper ring fragment (No. 223), as well as an additional copper fragment (No. 225) located in the west and southwest corners of the grave pit, respectively. Two faunal bone fragments (No. 224) were found immediately west of the latter. Finally, a human subadult femur with lines incised along the diaphysis (No. 225a) was recovered from directly below the left femoral midshaft of the female burial.

generally angular cobbles of metamorphic schist, which varied in size from small to large, however the largest stones were found around the ring's outer perimeter. Sediment throughout the excavation trench was generally dark brown loamy sand. A single flake (No. 226) was found within the northwestern portion of the paving stone ring.

After the removal of the surface stones, a grave pit was discovered below the southern perimeter of the ring's northern section. Seven stones were arranged in a semi-circle, which seemed to mark the western termination of the grave pit. Four stones were scattered in an apparently random pattern immediately to the north, while two additional stones were located c. 1.5 m to the east of these. Sediment throughout the trench was yellow-brown loamy sand, and containing large amounts of gravel and friable pieces of bedrock. Additional excavation to a depth of c. 1.0 m was necessary to expose dark brown, well-sorted sediment that marked the boundaries the grave pit.

Grave 15 contained the remains of a probable male approximately 17–18 years of age. The position of the burial was extended and supine, with the right arm flexed c. 90° and the hand resting on the lower thoracic region. The left arm was slightly flexed, with the hand on the pit floor, adjacent to the left os coxa. The lower limbs were positioned parallel to each other, and the cranium faced upwards. Nearly all skeletal elements were found in articulation, and the skeletal inventory was nearly complete. The natural preservation of the bones was poor, however, and all were highly fragmented. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre.

Only two items were directly associated with this burial. The first was a hammered sliver ring (No. 227), which was positioned on the individual's frontal bone, above the orbits. The second, a split boar tusk pendant (No. 228) was found covering the individual's neck.

Summary of objects not directly associated with the burial:

226. Flake with retouched on dorsal face 1
    L=18.65 mm, W=9.65 mm, Th=3.61 mm (jasper)

Summary of objects directly associated with the burial:

227. Ring..1

Outside Ø=25.78 mm, W=2.54 mm, Th=1.30 mm, Inside Ø=20.87 mm (silver)

228. Split boar tusk pendant...1

L=112.15 mm, W=23.16 mm, Th=4.87 mm (tusk)

GRAVE 16

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
5.0 x 4.0 m	1.75 x 0.55 x 0.40 m	50°/230°	2.20 x 1.00 x 0.80 m	1

Grave 16 was located in the eastern portion of the cemetery, near the base of the hill slope. The nearest graves were Grave 14, located c. 15 m upslope, and Grave 15, located c. 18 m to the north. Grave 16 was identified on the surface by a compact oval of paving stones, which measured c. 2.0 m northeast–southwest by c. 1.0 m northwest–southeast. A number of stones located in the northern two-thirds of the arrangement extended deeper into the sediment, while those within the southern third were only resting on the surface. Approximately ten stones were scattered in an apparently random fashion to the north of the stone oval, while an additional ten were located to the west. The stones were angular cobbles of metamorphic schist that varied in size from small to large. Sediment throughout the trench was generally poorly sorted, dark brown loamy sand, with an admixture of small, angular pebbles.

After the removal of the surface pavings, a large number of stones were found scattered in an apparently random pattern across the northwestern, northeastern, and southwestern quadrants of the excavation trench. These varied in size from small to large, but were larger on average that those of the surface arrangement. Sediment was generally poorly sorted, dark brown loamy sand. Further excavation revealed a grave pit beneath the central region of the paving stone arrangement; although no stone architecture delineated its boundaries, the grave pit was visible by the presence of darker, finer sediment within.

Grave 16 contained the remains of a female 15–25 years of age. The position of the burial was extended and supine, with the arms extended at the sides of the body. The cranium was slightly rotated to the individual's right side, while both hands were pronated, with palmar aspects facing the pit floor. Nearly all skeletal elements were present and articulated, although some ribs, most elements belonging to the feet, and those belonging to the left hand were entirely missing. Overall, the natural preservation of the bones was good and the skeletal inventory nearly complete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre.

A number of objects were directly associated with this burial. A cluster of artifacts was located immediately north of the left os coxa and proximal left femur, containing 8 hare phalanges (No. 229), a bone spoon (No. 230), 2 bone points (Nos. 231, 233a), 4 bone needle fragments (No. 232), and a lithic biface (No. 233). Two lithic disks (Nos. 234, 235) and one ring (No. 236) were found resting between the distal portions of the left radius and ulna. Fifty-six cylindrical beads (No. 237) were found in the area of the right wrist. An additional disk (No. 238) was resting over the fourth and fifth lumbar vertebrae. Two more rings, one located between the os coxae (No. 239), and one (No. 239) immediately west of the left os coxa, were also recovered. Finally, a lithic scraper/perforator was located on top of the left ilium.

Summary of objects directly associated with the burial:

229. Hare phalanges	8
230. Spoon with long handle and deep reservoir	1
L=211.0*mm, W=64.09 mm, Th=3.08 mm (bone)	
231. Bone point	1
L=125.0*mm, W=12.97 mm, Th=6.72 mm (bone)	
232. Needle fragments (one complete, two fragmented)	4

232.01 L=45.08 mm, W=2.30 mm, Th=2.06 mm (bone)

232.02 L=45.43 mm, W=3.40 mm, Th=2.02 mm (bone)

232.03 L=36.80 mm, W=1.97 mm, Th=1.39 mm (bone)

232.04 L=48.37 mm, W=1.64 mm, Th=1.18 mm (bone)

233. Leaf-shaped biface 1

L=113.97 mm, W=42.97 mm, Th=8.50 mm (jasper)

233a. Bone point 1

L=109.90 mm, W=6.20 mm, Th=3.15 mm (bone)

234. Disk 1

Outside ∅=15.79 mm, W=7.40 mm, Th=2.63 mm, Aperture □=1.79 mm (green nephrite)

235. Disk 1

Outside ∅=13.04 mm, W=6.08 mm, Th=3.80 mm, Aperture □=0.78 mm (aragonite)

236. Ring 1

Outside ∅=10.29 mm, W=3.44 mm, Th=3.23 mm, Aperture □=3.65 mm (aragonite)

237. Cylindrical beads 56

(kaolinite)

238. Disk 1

Outside ∅=25.80 mm, W=10.83 mm, Th=6.39 mm, Aperture □=6.05 mm (aragonite)

239. Rings 2

239.01 Outside ∅=18.90 mm, W=5.61 mm, Th=5.45 mm, Aperture □=9.44 mm (aragonite)

239.02 Outside ∅=17.12 mm, W=5.24 mm, Th=5.59 mm, Aperture □=7.43 mm (aragonite)

240. Scraper/perforator on a blade 1

L=51.54 mm, W=33.72 mm, Th=5.03 mm (jasper)

GRAVE 17

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
5.0 x 4.0 m	1.90 x 0.80 x 0.50 m	40°/220°	1.80 x 0.85 x 0.80 m	1

Grave 17 was located in the central portion of the cemetery. The nearest graves were Grave 14, located c. 25 m to the northeast, and Grave 13, located c. 30 m to the southwest. Grave 17 was identified on the surface by a collection of paving stones scattered throughout the excavation trench in no apparent pattern. The scatter covered an area c. 4.0 m north–south by 3.0 m east–west in size. The majority of stones was found in the trench's northeastern sector, and were primarily cobbles of angular metamorphic schist, which varied in size from small to large. The sediment within the excavation trench was generally light brown in color with an admixture of gravel, however the north-central region of the trench contained darker, and better sorted sediment. A single pottery fragment (No. 1) was recovered from the eastern portion of the excavation trench, within the southeastern portion of the paving stone scatter.

After the removal of the surface pavings, a grave pit was discovered immediately north of the central region of the scattered paving stones. Approximately 12 stones delineated the northeastern half of the pit. All stones, with the exception of one, were laid flat, parallel to the surface. The exception, a slab-like stone, was positioned vertically on the southeastern portion of the grave pit wall. In addition, a second, smaller pit was discovered c. 0.50 m southeast of the grave pit. This pit was rectangular in shape, and measured c. 0.80 m northeast–southwest by 0.60 m northwest–southeast. The long axis of this second pit was parallel to the long axis of the grave, and contained several stones and a few charcoal fragments, but no osteological or artifacts.

Grave 17 contained the incomplete remains of a probable male, whose age could only be assessed as adult. The burial position was extended and supine, with the right arm flexed, and the right hand placed with the palmar surface resting on the pelvic region. The left arm was extended at the individual's side, the palmar surface of the hand on the grave pit floor. All skeletal elements recovered from this interment were generally found in anatomical position and articulated, however some manual elements, nearly all pedal elements, and the cranium and mandible, were missing. Overall, the natural preservation of the bones was poor, and the remains highly fragmented. Bones found at the burial level were heavily stained with red ochre, and a large piece of charcoal was found beneath the proximal portion of the left femur. No artifacts or ecofacts were associated with this burial.

Summary of objects not directly associated with the burial:

1. Smooth-surfaced pottery fragment without decoration 1
   L=31.0 mm, W=17.4 mm, Th=5.9 mm (ceramic)

GRAVE 18

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
6.0 x 6.0 m	1.30 x 0.65 x 0.60 m	65°/245°	2.60 x 1.15 x 1.05 m	1

Grave 18 was located in the northeastern half of the cemetery, on the southeastern face of the hill slope. The nearest graves were Grave 15, located c. 12 m to the southwest, Grave 16, c. 26 m to the south-southeast, and Grave 18, found c. 26 m to the northeast. On the surface, the grave was visible as an ovoid ring of paving stones that measured c. 4.5 m northwest–southeast by 3.5 m southwest–northeast. The width of the ring was somewhat variable, ranging from as little as c. 0.5 m in the southwest and northeast portions to c. 2.2 m in the northwest and southeast. An area free of stones, positioned off center in the northwestern sector of the arrangement, accounted for the variability in width. The ring's center was generally circular in shape, and c. 1.5 m in diameter. The stones that composed the ring were generally angular cobbles of metamorphic schist, which varied in size from small to large. Sediment within the excavation unit was dark brown, poorly sorted loamy sand, however the matrix surrounding the paving stones was darker in color and better sorted. In the center of the ring, sediment was darker still, and very well sorted.

After the removal of the surface pavings, a grave pit was discovered below the northern portion of the ring's center. The pit contained approximately 45 angular stones, which varied in size from small to large. Most of these stones were piled in the northeastern half of the grave pit, with approximately a dozen scattered throughout the pit's southwestern half. Sediment inside the pit was dark brown loamy sand, and generally better sorted than that found outside the pit. A lithic flake (No. 2) was recovered c. 2.6 m east-southeast of the grave pit's southeastern corner, while a burin (No. 3) was found c. 1.6 m south of the grave pit's southeastern corner. In addition, a red deer canine pendant (No. 4) was recovered from the west-central region of the grave pit, while a faunal tooth fragment (No. 5) was found in the pit's eastern end.

Grave 18 contained the nearly complete remains of a probable female 17–19 years of age. The original burial position was impossible to determine, as the skeletal remains were generally disarticulated and scattered throughout the pit. Despite this apparent disturbance, nearly all skeletal elements were recovered from this grave. Three medium sized stones remained in the grave pit; the first in the pit's southwestern end, the second and third located adjacent to the pit's northeastern wall, c. 30 cm from the pit's eastern end. The cranium was located to the east of the grave pit's center, resting on its right side with the basal portion abutted with a medium-sized stone. The distal end of the left humerus was found immediately to the east of the cranium, and was positioned north–south. Further east, in the pit's northeastern end, the right tibia, fibula, talus, and calcaneus were found articulated, aligned north–south. The left femur was located immediately south of the cranium, aligned east–west. The left os coxa was found to the north of the left femur's midshaft, on top of which the distal portion of the right humerus was resting. The right femur was found along the western border of the grave pit, with it's distal epiphysis located to the south of the femur's distal end. The right femur's proximal end was abutted with the stone located in the grave pit's southwestern corner, while the mandible was located adjacent to the stone's east face. The right ulna was located c. 10 cm to the south of the mandible, along the southwestern wall of the grave pit. Further excavation uncovered articulated right manual elements under the cranium, as well as the left tibia, which was located north of the cranium, aligned with the northeast wall of the grave pit. The left ulna was positioned immediately west of the tibia, also aligned parallel to the grave pit wall. The remaining elements were generally scattered throughout the grave pit, with the exception of the scapulae and lumbar vertebrae, which were missing entirely. Overall, the natural preservation of the bones was good, and the skeletal inventory, although disarticulated, was nearly complete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre.

Only a few items were directly associated with this burial. A fish rib fragment (No. 6) was located c. 15 cm east of the cranium, while a fish scale (no number) was found c. 30 cm to the north of the rib. Seventeen red deer canine pendants were scattered throughout the western half of the grave pit, while a nephrite disk (No. 8) was recovered c. 20 cm east of the cranium.

Summary of objects not directly associated with the burial:

2. Flake with dorsal retouch on one edge	1
L=23.5 mm, W=13.8 mm, Th=5.6 mm (quartz)	
3. Burin on a prismatic blade	1
L=18.3 mm, W=8.2 mm, Th=1.6 mm (microquartzite)	
4. Red deer canine pendant	1
5. Faunal tooth fragment	1

Summary of objects directly associated with the burial:

6. Fish rib fragment	1
7. Red deer canine pendants	17

8. Disk 1

Outside ∅=58.5 mm, W=54.8 mm, Th=5.3 mm, Aperture □=5.1 mm (green nephrite)

GRAVE 19

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
6.0 x 5.0 m	0.75 x 0.75 x 0.80 m	n/a/n/a	2.20 x 1.25 x 0.95 m	1

Grave 19 was located at the northeastern border of the cemetery, at the base of the hill slope. The nearest grave was Grave 18, located c. 26 m to the southwest. On the modern surface, the location of Grave 19 was marked by compact ovoid arrangement of paving stones that measured c. 3.6 m east–west by 2.2 m north–south. A number of additional stones were scattered in an apparently random fashion throughout a c. 1.2 m wide area surrounding the south and east perimeters of the oval. The stones were generally irregular, angular cobbles of metamorphic schist that varied in size from small to large; the majority, however, were small to medium in size. The sediment found towards the periphery of the excavation trench was poorly sorted, light brown loamy sand, while that surrounding the paving stones was darker in color, and exhibited better sorting. A historic-era coin (No. 9) was found along the western edge of the paving stone oval, while a prismatic blade broken in two (Nos. 11, 12) was found c. 1.0 m to the north. A single pottery fragment (no number) was found c. 1.0 m to the west-northwest of the paving stone arrangement.

After the removal of the surface pavings, a compact circle of paving stones was discovered beneath the south-central sector of the stone oval. This arrangement measured c. 0.90 m in diameter, and was composed primarily of small to medium-sized stones that exhibited a red discoloration. In addition, a large number of stones that varied in size from small to large remained scattered within a c. 1.8 m wide band surrounding the periphery of the circle. Further excavation revealed a circular grave pit that contained well-sorted, dark brown sediment. Outside the pit, the yellow to light brown sediment was very poorly sorted, and contained large quantities of small to medium-sized angular cobbles that likely originated from a nearby bedrock outcropping. Two pottery fragments (No. 10), the first located c. 0.60 m northeast of the paving stone circle's eastern edge, the second located c. 1.0 m to the north of the circle, were recovered. Within the grave pit, a gneissic cobble (No. 13), three fragments of a cleaver tool (No. 14) and four lithic flakes (Nos. 15, 16, 17) were found scattered in the center of the grave pit.

Grave 19 housed the incomplete remains of a probable male 25–35 years of age. The original position of this burial was impossible to determine, as recovered skeletal elements were found in a disarticulated pile in the center of the grave pit. At the base of the grave pit, the cranium was found adjacent to the north wall, resting on the left parietal. The mandible was found with its occlusal surface upward, c. 30 cm to the south–southeast, adjacent to the grave pit's northwestern wall. The right femur was located immediately west of the cranium, aligned northwest–southeast. The right clavicle was oriented parallel to the right femur, located immediately to the west. The left femur was positioned immediately southeast of the right femur's proximal end, oriented perpendicular to the right femur. Approximately 15 cm southeast of the distal left femur, the left tibia was positioned, oriented north–south. The highly fragmented right tibia was located c. 25 cm to the north, adjacent to the grave pit's northern wall. Additional excavation uncovered both fibulae and humeri in the central region of the grave pit, below the left femur. The remaining skeletal elements were scattered horizontally and vertically throughout the grave pit, with the exception of the right radius, left clavicle, left manual elements, left and right carpal elements, os coxae, and left and right tarsals, which were not recovered. Overall, the natural preservation of the bones was fair, although many elements were highly fragmented. The skeletal inventory was nearly complete, and none of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre, although ochre staining of the sediment was observed at the burial level.

A number of objects were associated with this burial. A bone spoon (No. 18) was recovered from among the commingled skeletal elements in the center of the pit. Three prismatic blade fragments (No. 18a) were found in the immediate vicinity of the spoon fragments, while 69 incised bone fragments were recovered c. 13 cm south of the spoon fragments. A bone point (No. 18b) was found adjacent to the grave pit's north wall, with the long axis oriented northwest–southeast. A green nephrite disk fragment (No. 18c) was found directly in the pit's center, on the grave pit floor. In addition, a charcoal fragment (no number) was found c. 15 cm northeast of the bone spoon.

Summary of objects not directly associated with the burial:

9. Siberian coin from the times of Catherine II	1
Outside ∅ =24.7 mm, W=23.4 mm, Th=2.1 mm	
10. Smooth-surfaced pottery fragments without decoration	2
10.01 L=18.8 mm, W=17.4 mm, Th=2.1 mm (ceramic)	
10.02 L=19.6 mm, W=15.1 mm, Th=5.3 mm (ceramic)	
11. Prismatic blade fragment with partial retouch on one edge	1
L=35.1 mm, W=13.8 mm, Th=3.0 mm (microquartzite)	
12. Prismatic blade fragment with partial retouch (conjoins with No. 11)	1
L=21.0 mm, W=14.3 mm, Th=3.2 mm (microquartzite)	
13. Cobble with 1 flake removed, broken in two	1
L=61.0 mm, W=39.6 mm, Th=11.4 mm (gneiss)	
14. Cleaver tool fragments	3
L=114.7 mm, W=105.9 mm, Th=21.9 mm (quartzite)	
15. Flake	2
15.01 L=44.6 mm, W=25.3 mm, Th=10.1 mm (quartzite)	
15.02 L=84.4 mm, W=5.43 mm, Th=20.5 mm (quartzite)	
16. Flake	1
L=47.2 mm, W=43.3 mm, Th=22.0 mm (quartzite)	
17. Flake	1

L=20.1 mm, W=19.1 mm, Th=1.71 mm (quartzite)

Summary of objects directly associated with the burial:

18. Spoon with flat reservoir fragments..3
    Handle portion L=75.7 mm, W=21.3 mm, Th=3.9 mm (bone)
    Bowl portion L=57.9 mm, W=44.3 mm, Th=3.5 mm (bone)

18a. Prismatic blade fragments...3
    18a.01 L=10.1 mm, W=6.3 mm, Th=1.6 mm (quartz)
    18a.02 L=14.5 mm, W=8.1 mm, Th=1.8 mm (quartz)
    18a.03 L=11.6 mm, W=8.3 mm, Th=1.9 mm (quartz)

18b. Bone point..1
    L=153.4 mm, W=17.4 mm, Th=8.2 mm (bone)

18c. Disk fragment...1
    Outside ∅=38.8 mm, W=32.1 mm, Th=4.8 mm, Aperture □=2.9 mm (green nephrite)

18d. Bone fragments with incised parallel lines along shaft 69

FEATURE 20

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
4.0 x 5.0 m	1.80 x 0.60 x 0.40 m	150°/n/a	1.75 x 0.80 x 0.80 m	0

Feature 20 was located on the cemetery's upper terrace, c. 80 m northeast of the hill summit. Feature 20 was the westernmost feature in a cluster that contained Graves 21 and 22, and Feature 23. These were arranged in a linear formation oriented east-northeast–west-southwest, and each positioned c. 5.0 m apart on a gentle slope facing southeast. On the surface, Feature 20 was identified as a compact rectangle of paving stones that measured c. 2.8 m north–south by 2.0 m east–west. A dozen stones were found scattered c. 0.30 m east and southeast of the stone arrangement. Stones at the center of the arrangement rested at a slightly lower elevation than those towards the perimeter. Sediment within the trench was generally dark brown loamy sand, although that associated with the paving stones was generally well sorted, while sediment in the remainder of the trench was poorly sorted. The stones were irregular, angular cobbles of metamorphic schist that varied in size from small to large, however most were medium in size.

Following the removal of the surface pavings, a grave pit was discovered below the center of the surface paving stone arrangement. The pit was demarcated by the presence of fine, well sorted, dark brown sediment, in contrast to the matrix surrounding the pit, which was yellow in color and very poorly sorted. This grave pit was excavated to the bedrock floor, but no artifactual or osteological remains were recovered.

GRAVE 21

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
4.0 x 3.0 m	1.80 x 0.45 x 0.25 m	140°/320°	1.70 x 0.70 x 0.55 m	1

Grave 21 was located on the cemetery's upper terrace, c. 80 m northeast of the hill summit. Grave 21 was the westernmost grave in a cluster that contained Features 20 and 23, and Graves 21 and 22. These features were arranged in a linear formation oriented east-northeast–west-southwest, and positioned c. 5.0 m apart on a gentle slope facing southeast. On the surface, Grave 21 was identified by a compact oval of paving stones that measured c. 3.2 m northwest–southeast by 2.2 m northeast–southwest. A few stones near the edge of the oval possessed curved faces, although most stones were irregular, angular cobbles of metamorphic schist that varied in size from small to very large. A number of additional stones were scattered in an apparently random pattern throughout a c. 1.2 m wide area to the southwest of the paving stone cluster. Sediment surrounding the oval was generally poorly sorted, dark brown loamy sand, but sediment associated with the paving stones was finer in texture.

After the removal of the surface pavings, a grave pit was discovered below the western position of the paving stone oval. Approximately 25 stones of various sizes were found within the grave. In general, the smaller stones were found tightly clustered in the northwestern corner of the pit, while the larger ones were more loosely scattered in the pit's southeast half. The pit was also defined by the presence of dark brown, well-sorted sediment found within, in contrast to the poorly sorted sediment located outside the grave pit.

Grave 21 housed the remains of an adult individual of undetermined sex. The position of the burial was extended and supine, with the head rotated to face northeast. Both arms were flexed with hands resting pronated on the pelvic area. Skeletal elements recovered were generally found articulated in anatomical position, however most elements of the post-cranial axial skeleton were absent. Missing elements included all vertebrae, ribs, the fibulae, left clavicle, right scapula, and all manual and pedal elements. Those elements present were extremely friable. Overall, the natural preservation of the bones was poor, and the skeletal inventory only partially complete. None of the skeletal elements appeared to have undergone any specific treatments, such as burning or staining with ochre. A single prismatic blade fragment (No. 19) was found c. 4 cm to the south of the occipital bone.

Summary of objects directly associated with the burial:

19. Prismatic blade fragment 1

L=16.3 mm, W=8.7 mm, Th=2.7 mm (quartz)

GRAVE 22

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
4.0 x 4.0 m	1.60 x 0.45 x 0.30 m	140°/320°	1.95 x 0.80 x 0.60 m	1

Grave 22 was located on the cemetery's upper terrace, c. 80 m northeast of the hill summit. The nearest grave was Grave 21, located c. 5.0 m to the southwest. Grave 22 was part a cluster that contained Features 20 and 23, and Grave 21. These features were positioned c. 5.0 m apart on a gentle slope, arranged in a linear formation oriented east-northeast–west-southwest. On the surface, Grave 22 was identified by a compact oval of paving stones that measured c. 2.8 m north–south by c. 2.0 m east–west. The stones within the arrangement were irregularly shaped cobbles of metamorphic schist, which varied in size from small to large. The majority of larger stones were located towards the periphery of the paving stones, while those in the centre were generally smaller in size. In addition, stones found near the centre of the arrangement exhibited a red discoloration. Additional stones were scattered immediately to the southwestern portion of the paving stone oval, while approximately eight stones were scattered in an apparently random pattern in the southeastern corner of the trench, c. 0.50 m from the southeast edge of the oval. The sediment throughout the trench was generally poorly sorted, medium brown loamy sand, while sediment associated with the paving stones was similar in color, but exhibited better sorting.

After the removal of the surface paving stones, a grave pit was found beneath the western half of the paving stone oval. The grave pit contained approximately 35 stones surrounded by a matrix of dark, well-sorted sediment. These stones were irregularly shaped and ranged in size from small to large, although most were medium in size. Again, stones located near the grave pit's center exhibited red staining, likely from the use of red ochre.

Grave 22 contained the partial remains of an individual 25-35 years of age. This burial, whose sex was undeterminable, was interred on the their right side facing southwest, with the lower limbs semi-flexed. The left arm was flexed to approximately 90°, while only the upper portion of the right arm was present. Most skeletal elements present were found in their anatomical positions, although only portions of the cranium and appendicular skeleton were recovered. The vertebrae, ribs, most of the os coxae, the left clavicle, left ulna, left radius, and all manual and pedal elements were missing entirely. These elements were extremely friable. Overall, the natural preservation of the bones was poor, and the skeletal inventory only partially complete. None of the skeletal elements showed evidence of burning, however minor red ochre staining was visible in the thoracic region. No artifacts were recovered from this grave.

FEATURE 23

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
5.0 x 5.0 m	0.80 x 0.50 x 0.30 m	100°/n/a	1.80 x 0.90 x 0.85 m	0

Feature 23 was located on the cemetery's upper terrace, c. 80 m northeast of the hill summit. This feature was the westernmost in a cluster that contained Graves 21 and 22, and Feature 20. These were arranged in a linear formation oriented east-northeast–west-southwest, and positioned c. 5.0 m apart on a gentle slope facing southeast. On the surface, Feature 23 was identified as a compact oval of paving stones that measured c. 2.8 m east–west by 2.0 m north–south. Several additional stones were found scattered around the eastern perimeter of the stone oval. The majority of small stones were found in the center of the oval, while primarily medium-sized stones were located towards the perimeter; some found in the center of the arrangement exhibited subtle red stains. The stones themselves were generally irregular cobbles of metamorphic schist that varied in size from small to medium, while the sediment surrounding them was poorly sorted medium brown loamy sand.

After the removal of the surface paving stones, an additional oval cluster of stones was found beneath. This cluster, which measured c. 1.80 m east–west by 0.60 m north–south, delineated the location of the grave pit. Sediment associated with these stones was medium brown, well-sorted loamy sand, while the matrix surrounding the pit was generally yellow in color, and contained large quantities of gravel and degraded bedrock. Additional excavation exposed the bedrock floor of the pit. No osteological or archaeological items were recovered from this feature.

GRAVE 24

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
4.0 x 6.0 m	1.80 x 0.50 x 0.35 m	130°/310°	2.70 x 1.05 x 0.20 m	1

Grave 24 was located in the cemetery's upper terrace, c. 80 m northeast of the hill summit. This interment found c. 8.0 m east of Graves 25 and 26. Grave 24 was identified on the surface by a large scatter of paving stones that formed two distinct concentrations. The first, located in the eastern half of the excavation trench, was generally ovoid in shape and measured c. 3.0 m north–south by c. 2.0 m east–west. The long axis of the second, an irregular rhomboid shape, was oriented parallel to the first concentration c. 0.50 m to the west. This second concentration measured c. 4.0 m north–south by c. 2.5 m east–west. Both groups were composed of irregular, angular cobbles of metamorphic schist that varied in size from small to large, although most of the larger stones were located towards the periphery of the concentrations, while small to medium-sized stones predominated the in the interiors. Sediment throughout the excavation trench was a poorly sorted medium to dark brown loamy sand, however that associated with the paving stones exhibited better sorting.

After the removal of the surface stones, a single concentration remained below the western border of the second cluster of surface stones. This single concentration was irregularly ovoid in shape, and measured c. 2.0 m north–south by c. 1.0 m east–west. The stones were irregular cobbles of metamorphic schist, most of which were small to medium in size, and exhibited a red discoloration. The matrix surrounding this arrangement was very poorly sorted medium-brown loamy sand, while sediment associated with the paving stones exhibited better sorting, particularly in the north half of the arrangement. Further excavation uncovered numerous fragments of burnt birch bark, which were scattered throughout the grave pit.

Grave 24 housed the incomplete remains of a 20–30 year old individual of unknown sex. This burial was found in an extended and supine position, with slightly flexed arms lying at the sides of the body. The palmar surface of the left hand was resting on the left os coxa, while that of the right hand rested on the grave pit floor. Additionally, the superior portion of the body was located c. 40 cm farther from the modern surface than was the inferior portion of the body. In general, all recovered skeletal elements were found in their anatomical positions, however some elements, notably the right clavicle, patella, talus, and all right manual elements were missing. Most skeletal elements were extremely friable. Overall, the natural preservation of the bones was poor, and the skeletal inventory only partially complete. None of the skeletal elements showed evidence of burning, however minor red ochre staining was visible in the thoracic region. No artifacts were recovered from this grave.

GRAVE 25

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
6.0 x 4.0 m	1.45 x 0.70 x 0.50 m	70°/n/a	2.00 x 0.80 x 0.65 m	1

Grave 25 was located in the cemetery's upper terrace, c. 80 m northeast of the hill summit. This interment was part of a small cluster of graves that was located c. 15 m northwest of the cluster containing Features 20 and 23, and Graves 21 and 22. The nearest graves were Grave 24, located c. 6.0 m to the west, and Grave 26, located c. 5.0 m to the east. Grave 25 was identified on the surface by a thin, discontinuous ovoid ring of paving stones that measured c. 3.6 m by c. 2.6 m. The long axis of this ring was aligned west-northwest–east-southeast. Two areas devoid of stones interrupted the southwestern and northwestern portions of the ring; these areas each measured c. 0.50 m in width. The maximum width of the ring's body was c. 0.50 m. A large number of additional stones were scattered in an apparently random pattern within a c. 2.0 m wide band around the eastern perimeter of the paving stone oval. The ring's centre, which was devoid of stones, measured c. 2.4 m by c. 1.6 m, with the long axis aligned west-northwest–east-southeast. The stones composing the ring were angular, irregularly shaped cobbles of metamorphic schist, which varied in size from small to large, with most of the large stones found along the ring's interior perimeter. Sediment throughout the excavation trench was poorly sorted, medium brown loamy sand.

After the removal of the surface paving stones, a small circular concentration remained below the western sector of the ring's center. This circular arrangement, which measured c. 0.90 m in diameter, delineated the western end of the grave pit. These stones were oriented at an angle, with their inner edges pointed towards the center of the pit. In addition, some six stones were found immediately east of the circular arrangement, positioned in a broken line oriented south-southwest–north-northeast. These stones were also irregular cobbles of metamorphic schist, and varied in size from small to large. The sediment outside the grave pit was poorly sorted medium brown loamy sand, while sediment found inside the pit was darker in color, and exhibited better sorting. Due to difficulties in delineating the pit boundaries, however, this grave pit was overexcavated. As a result, the pit was excavated as an oval, when in fact the original grave pit was likely circular in shape.

Grave 25 contained the incomplete remains of a 20–35 year old of undetermined sex. All skeletal elements were contained within a tight cluster in the central portion of the grave pit adjacent to the north wall. This cluster contained the five vertebrae, three ribs and the left scapula. The articulated right tibia and fibula, some articulated right pedal elements, as well as the left femur were found articulated immediately to the east of the cluster of bones. Approximately 20 cm to the west of the bone cluster, a cervical vertebra, a left ulna fragment and a rib fragment were found. An additional three cervical vertebrae as well as the right clavicle were located immediately south of the bone concentration. Notably absent were the cranium, mandible, most ribs, humeri, radii, right ulna, right femur, left tibia, left clavicle, os coxae, and some manual and pedal elements. Most skeletal elements suffered from poor preservation, and were extremely friable. Overall, the natural preservation of the bones was poor, and the skeletal inventory only partially complete. None of the skeletal elements showed evidence of burning or staining with ochre.

A small number of items were directly associated with this burial. A side-scraper (No. 20) was found in the centre of the cluster of human bone, while a bone spoon (No. 21) was located immediately west of the cluster, lying adjacent and parallel to the north wall. Two fragments of mica (no number) were also found in association with the cluster.

Summary of objects directly associated with the burial:

20. Side-scraper on a flake..1

    L=55.1 mm, W=34.7 mm, Th=7.4 mm (jasper)

21. Antler spoon...1

L=213.7 mm, W=36.1 mm, Th=6.5 mm (antler)

Mica fragments 2

GRAVE 26

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
4.0 x 3.0 m	0.50 x 0.50 x 0.55 m	n/a/n/a	1.30 x 0.70 x 0.50 m	1

Grave 26 was located in the cemetery's upper terrace, c. 80 m northeast of the hill summit. This interment was part of a small cluster of graves that was located c. 15 m northwest of the cluster containing Features 20 and 23, and Graves 21 and 22. The nearest grave was Grave 25, located c. 5.0 m to the west. Grave 26 was identified on the surface by an ovoid ring of paving stones that measured c. 2.8 m northeast–southwest by c. 2.3 m northwest–southeast. The center of the ring was generally devoid of stones, and measured c. 1.8 m northeast–southwest by c. 1.0 m northwest–southeast. A number of stones were randomly scattered throughout a c. 1.0 m wide area adjacent to the east, southeast, and northwest portions of the ring's perimeter. The ring was composed of irregularly shaped cobbles of metamorphic schist that varied in size from small to large, however most were small in size. The sediment throughout the excavation trench was poorly sorted loamy sand, which was yellow to light brown in color. A side-scraper (No. 22) was found c. 1.0 m south of the central portion of the ring's southern perimeter.

After the removal of the surface paving, a grave pit was discovered below the western portion of the ring's center. The pit was circular in shape, and measured c. 0.70 m in diameter. The western end of the pit was delineated both by approximately six stones that were arranged around the border, as well as sediment within the grave pit that was well-sorted, and dark brown in color, in contrast to the poorly sorted, and yellow to light brown colored sediment outside.

Grave 26 housed the incomplete remains of a probable male 40–44 years of age. Although the skeletal remains were somewhat disarticulated, the burial position was apparently tightly flexed, and sitting. The right os coxa and sacrum were found articulated at the base of the pit, with the posterior face of the sacrum against the pit's northern wall. As such, this burial would likely have faced southwest. The articulated tibiae and fibulae were located immediately to the south, oriented c. 45° from the pit floor. The remaining skeletal elements were generally scattered throughout the confines of the pit, with elements of the superior skeleton resting on top of the inferior. Notably missing elements included the cranium, mandible, femora, right humerus, left ulna, right scapula, carpals, most metacarpals and metatarsals, and all right pedal elements. Overall, the natural preservation of the bones was good, however the skeletal inventory was only partially complete. None of the skeletal elements showed evidence of burning, or staining with ochre.

A number of items were directly associated with this burial. Five quartzite flakes (Nos. 23, 24) were found scattered among the human remains in the central portion of the grave pit. A nephrite adze (No. 25) was found near the eastern wall of the grave pit, within a cluster of bones containing a number of ribs and vertebrae. Immediately to the west, in the pit's center, a bone point (No. 32) was found oriented with the northwest–southeast axis. Two lithic knives (Nos. 26, 30) were located c. 30 cm northeast of the distal end of the left tibia. A discoid scraper (No. 28) was found associated with the right radius, near to the northeastern wall of the grave pit, while a fragment of a discoid scraper (No. 29) was found c. 28 cm to the northeast of the distal end of the right tibia. Two additional flakes (Nos. 27, 31) were found on the left ilium. Finally, a fragment of an unidentified faunal long bone (No. 33) was found against the upper portion of the grave pit's eastern wall.

Summary of objects not directly associated with the burial:

22. Side-scraper on a flake..1

L=22.3 mm, W=19.8 mm, Th=3.0 mm (jasper)

Summary of objects directly associated with the burial:

23. Flakes	4
23.01 L=10.4 mm, W=10.3 mm, Th=2.8 mm (quartzite)	
23.02 L=18.6 mm, W=11.6 mm, Th=2.0 mm (quartzite)	
23.03 L=24.2 mm, W=12.3 mm, Th=3.1 mm (quartzite)	
23.04 L=47.2 mm, W=44.3 mm, Th=3.8 mm (quartzite)	
24. Flake with partial retouch	1
L=32.9 mm, W=25.1 mm, Th=2.5 mm (quartzite)	
25. Adze	1
L=55.9 mm, W=24.9 mm, Th=12.0 mm (green nephrite)	
26. Knife	1
L=49.7 mm, W=33.2 mm, Th=7.3 mm (quartzite)	
27. Worked flake	1
L=36.7 mm, W=30.1 mm, Th=4.8 mm (quartzite)	
28. Discoid scraper	1
L=65.1 mm, W=57.8 mm, Th=4.3 mm (carbonaceous slate)	
29. Discoid scraper fragment	1
L=42.2 mm, W=38.2 mm, Th=3.6 mm (quartzite)	
30. Knife with two cutting edges	1
L=47.3 mm, W=21.9 mm, Th=3.6 mm (quartzite)	
31. Flake with retouch on both faces	1
L=48.0 mm, W=29.2 mm, Th=3.2 mm (quartzite)	
32. Bone point fragment	1
L=124.9 mm, W=10.1 mm, Th=6.6 mm (bone)	
33. Faunal long bone tool blank	1
L=134.7 mm, W=16.2 mm, Th=7.5 mm (bone)	
Mica fragments	2

GRAVE 27

Summary of Archaeological Characteristics

Trench Size	Pit Dimensions L x W x D	Pit/Burial Azimuth	Rock Volume	Number of Individuals
4.0 x 3.0 m	1.60 x 0.45 x 0.25 m	125°/305°	2.70 x 1.00 x 0.55 m	1

Grave 27 was located at the eastern edge of the cemetery on a small terrace located approximately in the middle of the hill slope's eastern face. The nearest graves were Grave 19, located c. 30 m southwest, and Grave 23, located c. 28 m to the west–northwest. Grave 27 was visible on the surface as nearly circular cluster of paving stones that measured c. 3.2 m east–west by c. 2.75 m north–south. Within the south-central portion of the paving stones, a circular area devoid of stones measuring c. 40 cm in diameter was found. A few additional stones were found scattered within a c. 1.0 m wide area to the north and northeast of the paving stone circle. The circle was composed of irregularly shaped cobbles of metamorphic schist that varied in size from small to large, with most of the largest stones found along the circle's perimeter. The majority of stones, however, were small to medium in size. Sediment throughout the excavation trench was generally poorly sorted, medium brown loamy sand, while sediment associated with the paving stones exhibited better sorting. Two microblade fragments (No. 34) were found among the paving, approximately in the arrangement's center.

After the removal of the surface stones, a grave pit was found below the center of the circle. The western half of the grave pit contained approximately 25 small metamorphic schist cobbles, which were angular and irregular in shape. The stones were oriented in a seemingly random fashion. The sediment within the grave pit was dark brown, well-sorted loamy sand, while sediment outside the pit was poorly sorted, and medium brown to yellow in color.

Grave 27 housed the partial remains of a 40–44 year old individual of undetermined sex. The burial position was likely extended and supine, however very few elements were present, and those recovered were exhibited extremely poor preservation. Skeletal elements recovered included fragments of the occipital, mandible, and temporal bones, two vertebral fragments, fragments of the left humerus, right ulna, right tibia, an unsided femur, and both fibulae. All were recovered from their anatomical positions.

Only two items were directly associated with this burial. They included a microblade (No. 36) and a microblade fragment (No. 35), both found on top of the cranial fragments.

Summary of objects not directly associated with the burial:

34. Prismatic microblade fragments with partial retouch on dorsal face........................2

    34.01 L=16.2 mm, W=4.2 mm, Th=1.3 mm (microquartzite)

    34.02 L=14.3 mm, W=4.1 mm, Th=1.3 mm (microquartzite)

Summary of objects directly associated with the burial:

35. Prismatic microblade fragment...1

    L=6.6 mm, W=4.3 mm, Th=1.1 mm (clayish-coal slate)

36. Prismatic blade...1

    L=21.0 mm, W=6.8 mm, Th=1.6 mm (quartz)